University of Maryland
School of Medicine
1988–1990

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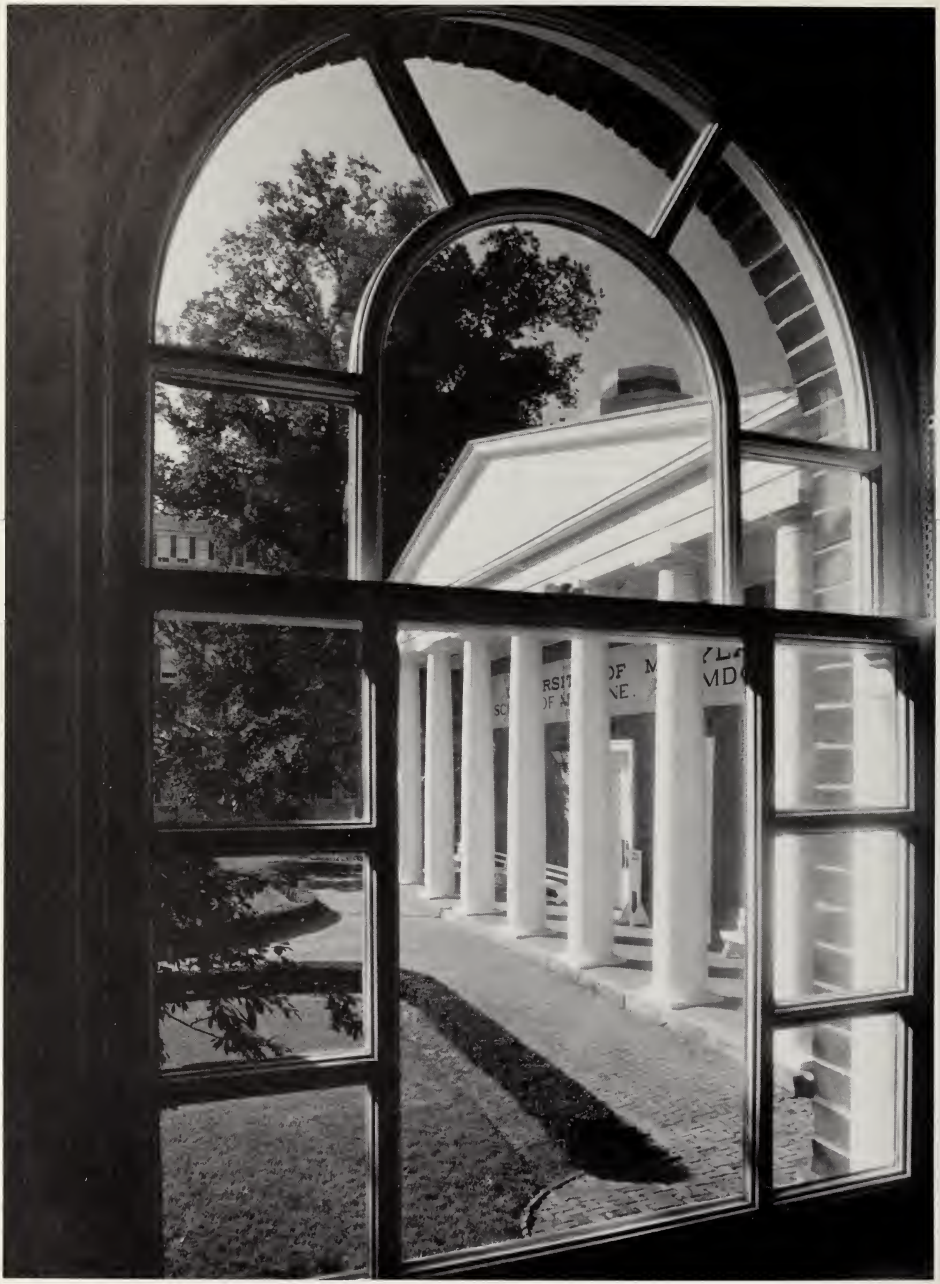


The fifth medical school in the country, established in 1807, and the first to have a residency training program, the University of Maryland School of Medicine today is an academic health center that combines medical education, biomedical research and service. While the school's tradition of excellence remains constant it's national reputation continues to grow.

The School of Medicine boasts the oldest building in the U S. in continuous use for medical education, the meticulously restored Davidge Hall, completed in 1812. Yet the school's two main classroom and laboratory buildings, the 14-story Bressler research tower and the nine-story Medical School Teaching Facility, were completed within the last decade.

The campus, as well, continues to grow. Construction of the new R Adams Cowley Shock Trauma Center and the new Veterans Administration Medical Center is under way. Plans for the near future include a state-of-the-art research tower and expansion of the nationally recognized Health Sciences Library.

Education

In the traditional undergraduate curriculum, medical students concentrate on basic sciences for two years, then begin to apply this knowledge to clinical settings. Ample allowance is made for electives, independent study and special research projects. Throughout the four years, each student has a basic science and a clinical faculty advisor.

The ties between the school and the hospital on campus enrich both medical education and health care. All physicians practicing at the University of Maryland Medical System/Hospital have School of Medicine faculty appointments and are actively involved in the educational process in addition to supervising residency training for more than 400 postgraduate positions at the University Hospital and affiliated hospitals. The Medical System includes a 747-bed teaching hospital, Cancer Center and Shock Trauma Center on campus, as well as the Montebello Rehabilitation Center and the James Lawrence Kernan Hospital off campus. Together, these serve as primary clinical training sites as well as a source of comprehensive health care for the local community and the state. The school also has established clinical affiliations throughout the region, giving students unusual flexibility in clinical experiences.

In an effort to nurture more interest in basic research and to meet the increasing demand for physician-scientists, the school now offers a combined MD/PhD program in 10 medical sciences and an MD/MS program in preventive medicine.

Although the schedule can be flexible, MD/PhD students typically complete the freshman and sophomore years of medical school, enroll as graduate students for approximately two years, and then begin the clinical clerkships.

Medical students in the track leading to the MD/MS in preventive medicine may complete the dual degree program in four or, more typically, five years. The fifth year is counted fully as one year of preventive medicine residency training by the American Board of Preventive Medicine.

Research

Ranked among the top public medical schools in NIH research support, the level of research funding for the School of Medicine has risen dramatically in recent years in contrast to a leveling national trend in grant support. Strong multi-departmental investigations in hyptertension, genetics, pharmacology, neurobiology and immunology place this institution at the forefront of biomedical research. Major awards illustrate the strength and scope of the research environment.

- The Center for Vaccine Development began testing a new malaria vaccine in 1986 under a $6.7 million contract from the National Institute of Allergy and Infectious Disease.
- The Stroke Center has received $3 million in grants to continue its stroke data bank and clinical research in mood disorders following stroke as well as studies into the cause and basic mechanisms of stroke.
- Physiologists seeking greater understanding of the molecular basis of behavior recently identified PCP receptors in the brain. Among departments of physiology, the school's department is second nationally in fellowship support and ninth in the number of research grants awarded.
- The Cancer Center, one of four U.S. facilities authorized to conduct Phase I, II and III drug trials, received a $2.8 million National Cancer Institute grant in 1986.
- The Maryland Psychiatric Research Center received $1.2 million from the National Institute of Mental Health to establish one of two U.S. research centers for the study of schizophrenia.
- Faculty members working at the Baltimore Veterans Administration Medical Center are testing anti-AIDS viral agents in mice under an $850,000 NIH contract.

Public Service

Not only does the School of Medicine train a majority of Maryland's practicing physicians, it also provides leadership in health planning and policy making. For example, the Maryland Plan, a joint School of Medicine-Department of Health and Mental Hygiene venture, has revolutionized mental health care in the state and become a national model. Through an innovative residency program, the project has attracted board-certified psychiatrists to administrative and clinical positions in state mental hospitals and, in the process, significantly improved the quality of patient care.

Tuerk House, the residential facility for the school's alcohol and drug abuse programs, has pioneered in the treatment and support of alcoholics for more than four decades. The new $3.7 million Tuerk House, under construction, will have separate facilities for adult alcoholics and drug abusers and for adolescents.

In addition to making house calls, family medicine specialists coordinate Supportive Care, a program that allows frail elderly and disabled Baltimoreans to remain in their own homes and avoid unnecessary placement in nursing homes. The interdisciplinary health and home care program is funded by the Robert Wood Johnson Foundation.

Pediatricians screen area children for developmental disabilities under a contract with the public school system, while genetics specialists counsel prospective parents in several remote areas of the state.

The Department of Epidemiology and Preventive Medicine designs computer models to forecast welfare caseload and use, and operates the Maryland Cancer Registry under a contract with the state Department of Health and Mental Hygiene.

Pathology faculty serve as "doctors on call" to the National Aquarium in Baltimore.

Milestones

The foundations of the School of Medicine date back to 1789, when Baltimore physicians organized the Medical Society of Baltimore in an effort to train young physicians to succeed them as their numbers had been greatly diminished following the Revolutionary War, and to prevent charlatans from practicing in the area. Members of the society began to train prospective physicians in their homes, lecturing on anatomy, surgery and chemistry. They soon petitioned the Maryland State Legislature to establish a college of medicine, on a firm basis and under the protection of the law. This request was approved on January 20, 1807, together with a lottery to raise money for a home for the fledgling "College of Medicine in Maryland."

Dr. John Beale Davidge, a physician trained in Scotland, became dean and took the chair in surgery. His founding faculty were James Cocke (anatomy and physiology), James Shaw (chemistry) and Nathaniel Potter (theory and practice of medicine). From the beginning, there was a strong emphasis on bedside teaching. The first class of seven received clinical instruction at the Baltimore Almshouse, a workhouse and infirmary for the poor.

Determined that the school have its own home, Davidge, Shaw and Cocke bought land from John Eager Howard which was "quite some distance from town" to protect against unruly mobs who had demolished the doctors' first anatomical theater in violent opposition to the dissection of human cadavers. Davidge Hall was designed by Robert Carey Long, Sr. modeled after the Pantheon in Rome, and completed in 1812. In addition to two expansive circular lecture amphitheaters, there are dissecting cubbyholes, secret stairways and hidden exits which afforded students and professors safe passage from angry mobs.

In 1823, the Baltimore Infirmary, forerunner of the University of Maryland Hospital, was built opposite Davidge Hall. It was the first hospital founded by a medical school for the express purpose of clinical instruction, and the site of the first intramural residency program in the United States. Senior medical students lived in the hospital while helping to care for patients.

In curriculum development, the School of Medicine claims a long and proud tradition as a trend setter. The school was the first to recognize the value of the basic sciences and introduced the first preventive medicine course in 1833. In 1848 it became the first school to require anatomical dissection, and six years later introduced compulsory courses in gross and microscopic pathology. Maryland was the first to establish chairs in the diseases of women and children (1867) and diseases of the eye and ear (1873).

Mergers with the Baltimore Medical College in 1913 and the College of Physicians and Surgeons in 1915 meant greatly expanded clinical facilities and faculty for the School of Medicine. Early in the twentieth century, Drs. James Rowland and Louis Douglas initiated off-site obstetrical care and home delivery, prenatal clinics and an Rh blood typing laboratory, all of which improved infant and maternal health significantly.

The School of Medicine has had its share of medical breakthroughs, including in recent decades discovery of the thyrotropic hormone, the first successful antibiotic treatment of Rocky Mountain spotted fever, the first specific cure for typhoid fever and the successful treatment of diabetic keto-acidosis with low dose insulin. The Shock Trauma Center, which opened in 1961, has served as a worldwide model for emergency medical treatment. In 1967 the school began one of the first formalized residency programs in family practice.

The rest, of course, is not yet history, but certainly history in the making.

The Campus and Beyond

The School of Medicine is part of one of the country's first centers for professional education and research. The school shares the 33-acre University of Maryland at Baltimore campus with the Dental School, the Schools of Law, Nursing, Pharmacy, Social Work and Community Planning, the Graduate School and the University of Maryland Medical System/Hospital. Hope Lodge and the Baltimore Ronald McDonald House also share the campus, both offering low cost housing and a home-like atmosphere for patients and their families.

Opportunities abound for faculty and students to join with other health and human service professionals in interdisciplinary study, informal discourse and collaborative clinical practice and research. The Baltimore campus is located in the hub of one of the greatest concentrations of health care institutions, research facilities, government agencies and professional associations in the nation, offering students a wide selection of field experiences.

In addition to professional opportunities, the city of Baltimore—twelfth largest in the nation—offers a stimulating environment in which to live and study. Several blocks from the campus is the nationally acclaimed Inner Harbor area, where Harborplace, the National Aquarium, and the Maryland Science Center share an attractive waterfront with sailboats, hotels, restaurants and restored and renovated townhouses.

As a cultural center, Baltimore offers a world-class symphony orchestra, several fine museums, libraries and professional theater groups. For sports fans, Baltimore boasts Orioles baseball, Blast soccer and collegiate and club lacrosse. The nearby Chesapeake Bay offers unparalleled water sports and the seafood for which the region is famous.

Accreditation

The University of Maryland is a member of the Association of American Colleges and is accredited by the Middle States Association of Colleges and Secondary Schools. The School of Medicine is accredited by the Liaison Committee on Medical Education, the accrediting body for the Association of American Medical Colleges and the American Medical Association.

Application

The University of Maryland School of Medicine is a participant in the American Medical College Application Service (AMCAS). All requests for a place in the first-year class must be initiated by an AMCAS application. AMCAS application request cards can be obtained from AMCAS, Suite 310, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036-1989 or the Committee on Admissions, University of Maryland School of Medicine, 655 West Baltimore Street, Baltimore, Maryland 21201. In addition, they are usually available from the premedical advisory office at the undergraduate college. AMCAS application material is ready for distribution about mid-June of the year prior to the year the applicant wishes to enter medical school.

For the School of Medicine, the AMCAS application is the first of a two-stage application process and is due in Washington by December 1. The Committee on Admissions thoroughly reviews the AMCAS application and, based on the information contained in it, determines whether the second stage (School of Medicine) application form can be sent. An application fee ($25.00) to the School of Medicine is sent only with the filing of the second stage application form which is due by December 31. Every applicant either will be sent second stage application material or will be informed that the committee cannot continue the application process.

The application form and supporting credentials should be filed as early as possible in the application period. Please do not have supporting credentials sent prior to filing a second stage application.

The applicant must assume responsibility for assuring that all required credentials and the completed application packet are filed with and received by the Committee on Admissions. Please check with the Admissions Office to ensure that all materials have been received.

Applicants are expected to respond truthfully and completely to all questions on the AMCAS and School of Medicine application forms. Any applicant who provides false or misleading information may be denied admission or, if enrolled before discovery of irregularity in the application process, may be dismissed from the school.

Early Decision Program

The University of Maryland School of Medicine has an Early Decision Program for students whose first choice of medical schools is the University of Maryland. The Committee on Admissions interviews selected Early Decision applicants and makes a decision on these students before considering the regular pool of applicants. By applying for Early Decision, the highly qualified applicant avoids having to make numerous other applications. Applicants with marginal academic credentials are discouraged from applying through this program.

The Early Decision applicant must apply only to this school by the AMCAS deadline of August 1. Applicants must provide all supplementary information by September 1. Interviews will take place between mid-August and late September. No one will be accepted without an interview. If offered a place by this school, the applicant cannot apply elsewhere. All decisions for this program are made by October 1.

The Committee on Admissions can make one of three decisions for each Early Decision applicant: 1) acceptance; 2) rejection; or 3) placement into the regular applicant pool for review at a later time. Each applicant will be notified promptly of the Committee on Admissions' decision so that those not accepted through this program can apply elsewhere.

Early Decision Program applicants cannot apply to any other medical school until they are notified that they have not been accepted through the program.

Applicant Selection Criteria

Academic achievement, extracurricular activities, personal characteristics, recommendations from the premedical committee or college instructors, scores on the Medical College Admissions Test (MCAT) and personal interview all are considered in evaluating an applicant. Academic achievement and/or high MCAT scores do not in themselves ensure acceptance. Of significant concern to the Committee on Admissions are the applicant's character, personality and potential to perform as a medical student and as a future physician. Communication ability, personal integrity, emotional maturity and stability, motivation, interpersonal skills, and interests and activities outside the classroom are evaluated carefully.

Applications from persons with outstanding credentials from other areas of the United States and Canada are welcome and will receive all possible consideration. Preference in the selection process is given to residents of the state of Maryland. Applications can be processed only from United States and Canadian citizens or from persons in this country on a permanent resident visa. Occasionally an applicant residing in the United States holds a visa permitting him/her to live in the United States indefinitely and to establish residency in one of the states. Applications are accepted from these individuals. Those on a time-limited visa, such as a student visa, are not eligible to apply, but if highly qualified, may write to the Admissions Committee (after applying through AMCAS) and request consideration.

Admission to First Year

The student should plan a four-year curriculum with a suitable arts or science major leading to a bachelor's degree. The Committee on Admissions encourages applicants to pursue a course of study that is rigorous, scholarly and focused on areas that are intellectually challenging and interesting to the applicant. The Committee on Admissions seeks to admit students with diverse academic backgrounds.

A minimum of 90 semester hours of acceptable college credit is required, exclusive of physical education and military science. This must be earned in colleges of arts and sciences whose names appear on the current list of Accredited Institutions of Higher Education as compiled by the National Committee of Regional Accrediting Agencies of the United States. The only courses accepted are those which are approved for credit towards a degree by the university or college attended.

Successful completion of the following courses and credits is required before registering for medical school:

	Semester Hours
Biological sciences	8
Inorganic chemistry	8
Organic chemistry	6
General physics	8
English	6

No more than 60 hours can be accepted from accredited junior colleges and then, only if these credits are validated by a college offering a Bachelor of Arts or Science degree. Advanced placement credits for science courses taken in high school may be accepted if the applicant's college (which grants the bachelor's degree) has given college credit for those courses. Other exceptions may be granted at the discretion of the Committee on Admissions.

Selected students entering the School of Medicine from colleges which usually grant a baccalaureate degree after the successful completion of the first year of medicine are responsible for: (1) providing a certificate from the college or university certifying eligibility for this degree; and (2) meeting all requirements of the School of Medicine for advancement to the second year.

A letter of evaluation is required from the undergraduate premedical committee for those applicants still enrolled in or recently graduated from undergraduate college. If there is no premedical committee, letters are requested from three course instructors. When letters from any other sources are sent, permission to use these instead of letters from course faculty must be granted by the associate dean for admissions. These letters should be only from persons who can evaluate the applicant's accomplishments, productivity and character objectively and critically. All letters of evaluation should be sent directly to the Committee on Admissions. They are not to be sent to AMCAS.

Each applicant's credentials are evaluated by the Committee on Admissions to determine if an interview is to be granted. All interviews are conducted at the University of Maryland School of Medicine. These interviews are scheduled in advance by invitation.

It is recommended that the MCAT be taken within five years of anticipated matriculation. It must be taken no later than the fall of the year prior to entrance. Applicants should write to the American College Testing Program, P.O. Box 414, Iowa City, Iowa 52240, for further information and registration forms, or to the Committee on Admissions.

In the selection process, the Committee on Admissions must use as the applicant's residency status that which is in effect on the last day applications can be received (December 31). The Office of Admissions and Registrations (a central campus office), University of Maryland at Baltimore, 621 West Lombard Street, Baltimore, Maryland 21201; (301) 328-7480, is responsible for all decisions regarding residency. All questions, complaints and appeals regarding residency status should be directed to that office, not to the Office of Admissions for the School of Medicine. Nonresidents who matriculate here should plan on maintaining that status throughout the four years of medical school. Current standards for reclassification to in-state status are rigorous and anticipated changes in policy may make reclassification more difficult.

For further information regarding the admissions process in general, the applicant is referred to a booklet entitled "Medical School Admissions Requirements" which can be obtained from:

Association of American Medical Colleges
Suite 200, One DuPont Circle, N.W.
Washington, D.C. 20036-1989

Advanced Standing

Students who have attended medical schools in the United States are eligible to file application for admission to the second- and third-year classes only. Application must be made no later than May 1 of the desired year of admission. Applicants for advanced standing must meet all of the current first-year entrance requirements in addition to presenting acceptable medical school credentials and a medical school record based on courses that are equivalent to similar courses in this school. This includes taking the MCAT examination and satisfying the undergraduate prerequisites. Applicants for admission with advanced standing to the year III class also are required to take Part I of the National Board Examinations.

No student who has been dismissed from any medical school will be considered, unless his/her former dean submits a letter addressed to the Committee on Admissions confirming that the student has been reinstated in good standing and is eligible for promotion. No student can be considered who is not eligible for promotion at the time of transfer.

Persons who already hold the degree Doctor of Medicine cannot be admitted to the medical school as candidates for that degree from this university. This is true for both advanced standing and first-year applicants.

Citizens of the United States who are studying medicine in foreign medical schools may apply for admission to the year III class only. Application must be made no later than May 1 of the year of desired admission. Applicants for advanced standing must meet all of the first-year entrance requirements, including the MCAT examination and undergraduate prerequisites, and submit acceptable medical school credentials as well as a medical school record based on courses equivalent to similar courses in this school. In addition, they must take the Medical Sciences Knowledge Profile (MSKP) test. Students in foreign schools are no longer permitted to take Part I of the National Board Examinations. Applications for the MSKP must be made to:

MSKP—Association of American Medical Colleges, Suite 301
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036-1989

General Rules

The university authorities reserve the right to make changes, whenever appropriate, in the curriculum, the requirements for advancement and graduation, fees and rules and regulations.

Matriculants are required to accept the provisions of the Judicial Board and agree to assume its obligations prior to registration.

Students who report for classes later than one week after the scheduled time will be permitted to begin work only by permission of the dean. Attendance at all scheduled classes is expected.

Notice of change of address should be submitted promptly to the Dean's Office and to the Registrar's Office.

All new students, whether they are admitted to the first-year class or with advanced standing, are expected to attend an orientation for new students.

Grades and Promotion

The final grades for all courses in all four years should be recorded as follows:

- A (Excellent)
- B (Very Good)
- C (Satisfactory)
- D (Unsatisfactory)
- F (Failing)
- Inc This designation is used only when mitigating circumstances (e.g., illness, unavoidable absence) have prevented the student from completing the course on time. It is to be viewed as a nonprejudicial entry on the student's record; the grade "Inc" remains on the official student transcript.

An award of "Honors" is given to a student who receives a final grade of "A" and performs an additional scholarly effort that is clearly outstanding.

In addition to the final objective grade and the Honors category, the student's overall performance is evaluated subjectively. Appropriate evaluation forms are designated for this purpose.

Established rules for advancement and dismissal during all four years have been approved by the faculty and student body representatives of the School of Medicine Council. All regulations related to grading, advancement and dismissal are included in the *Academic Handbook* given to all entering students at orientation.

The faculty reserves the right to determine whether a student may withdraw, repeat, advance or graduate on academic or moral and personal grounds, including traits of character.

Disclosure of Student Information

In accordance with "The Family Education Rights and Privacy Acts of 1974" (PL 93-380), popularly referred to as the "Buckley Amendment," disclosure of student information, including financial and academic, is restricted. Release to anyone other than the student requires a written waiver from the student. A full policy statement may be found in the current *UMAB Student Handbook* issued to all incoming students.

Equal Opportunity

The University of Maryland, in all its branches and divisions, subscribes to a policy of equal educational opportunity for men and women of all races, creeds and ethnic origins. The school has the objective of securing a broad racial, sexual and ethnic balance in its enrollment. To achieve this objective it gives every consideration to minority student applications.

Unethical Conduct

In order to matriculate and/or graduate, students must be of good moral character, consistent with the licensure requirements of the state of Maryland for physicians, and must demonstrate character traits consistent with competent performance as a physician. The school reserves the right to dismiss or fail to graduate any student whose actions and overall academic performance, including clinical performance, do not demonstrate good moral character and ability to function effectively as a physician. Such action may be taken notwithstanding a student's compliance with standards for advancement and graduation set out in the School of Medicine Grading Policy.

Salary and Employment Information

Students admitted to the University of Maryland School of Medicine can be assured of remunerative employment after satisfactory completion of the course of study and receipt of the degree, Doctor of Medicine. A high percentage of graduates enter the practice of medicine after completion of residency training. There appears to be a moderate excess of physicians in some disciplines of medicine and in some geographic areas. However, the overall need for persons holding the MD degree is such that all graduates of the School of Medicine may expect a satisfactory income.

Determination of In-State Status

An initial determination of in-state status for admission, tuition and charge-differential purposes will be made by the university at the time a student's application for admission is under consideration. The determination made at that time, and any determination thereafter, shall prevail in each semester until the determination is successfully challenged prior to the last day available for registration for the forthcoming semester. A determination regarding in-state status may be changed for any subsequent semester if circumstances warrant redetermination.

In those instances where an entering class size is established and where an application deadline is stated, in-state conditions for admissions must be satisfied as of the announced closing application date.

Petitions for review of eligibility and questions concerning the university policy should be directed to the Division of Admissions and Registrations, University of Maryland at Baltimore, 621 West Lombard Street, Baltimore, Maryland 21201.

Students classified as in-state for admission, tuition and charge-differential purposes are responsible for notifying the Division of Admissions and Registrations, in writing, within 15 days of any change in circumstances which might affect their classification at the Baltimore city campus.

A complete policy statement may be obtained from the School of Medicine's Committee on Admissions or the UMAB Division of Admissions and Registrations.

Tuition and Fees for 1987–1988

	PER SEMESTER	PER YEAR
Application Fee/Matriculation Fee*	—	$ 25
Tuition—In-State	2,991	5,982
Tuition—Out-of-State	6,082	12,164
Instructional Resources Fee	28	56
Student Activities Fee	27	54
Student Health Fee	28	56
Hospital Insurance (Individual)**	204	408
Student Liability Insurance***	—	253
Supporting Facilities Fee	65	130
Dormitory Fee****	929	1,859
Graduation Fee—Seniors	—	25
Student Government Fee	5	10
Hepatitis Vaccine (First Year)	—	115

**An application fee of $25.00 should be submitted with the formal application to the School of Medicine. This fee will be applied against the matriculation fee for accepted students. A partial tuition prepayment may be required before matriculation.*

***Hospital insurance is required of all full-time students. A brief outline of the student health insurance program is furnished each student. Students with equivalent insurance coverage must provide proof of such coverage to Campus Health Services at the time of registration to obtain a hospital insurance waiver. Rates are subject to change.*

****Student liability (malpractice) insurance is required of all students.*

*****Rate based on 10-month year. Transient rates available for summer.*

Fees

The application and/or matriculation fee partially defrays the cost of processing applications for admission and enrollment data in the professional schools. These fees are not refundable.

The tuition charges meet a portion of the costs for the educational program and supporting services.

The instructional resources fee is charged to provide funds for supplies, materials, equipment and other costs directly associated with the instructional program.

Student activities fees are used to meet the costs of various student activities, student publications and cultural programs. The Student Government Association, in cooperation with the Dean's Office, recommends expenditure of the fees collected.

A student health fee is charged to help defray the cost of providing health services which include routine examinations and emergency care. Acceptable medical insurance is required in addition to the student health fee.

The supporting facilities fee is used in support of the expansion of various facilities on campus that are not funded or are partially funded through other sources.

Diploma fees are charged to help defray costs involved with graduation and commencement.

All checks and money orders should be made payable to the *University of Maryland* for the exact amount of the actual bill.

A service charge is assessed for dishonored checks. It is payable for each check returned unpaid by the drawee bank because of insufficient funds, stopped payment, postdating, or if it has been drawn against uncollected items.

For checks up to $50—$5
For checks from $50.01 to $100—$10
For checks over $100—$20

Late registration fees defray the cost of the special handling involved for those who do not complete their registration on the prescribed days. No diploma, certificate or transcript will be issued to a student until all financial obligations to the university have been satisfied.

The university reserves the right to make such changes in fees and other charges as may be necessary.

Registration

To attend classes at the UMAB campus it is necessary to process an official registration. All students are required to register each term in accordance with current registration procedures. The balance of tuition and fees is due and payable on the dates specified for registration. Registration is not completed until all financial obligations are satisfied. Students who do not complete their registration, including the payment of their bill on the registration days, will be subject to a late registration fee.

Courses taken concurrently with a UMAB registration at another campus or institution must have program approval in advance by the appropriate UMAB officials. Off-campus registration forms are available in each dean's office and the Registrar's Office.

Although the university regularly mails bills to advance-registered students, it cannot assume responsibility of their receipt. If any student does not receive a bill prior to the beginning of a semester in which he or she has advance-registered, it is that student's responsibility to contact Student Accounting, Administration Building, during normal business hours.

Students who arena-register or advance-register and subsequently decide not to attend UMAB must notify the Registrar's Office, Room 326, Baltimore Student Union, in writing, prior to the first day of instruction. If this office has not received a request for cancellation by 4:30 p.m. of the last day before instruction begins, the university will assume the student plans to attend and accepts the financial obligation.

After classes begin, students who wish to terminate their registration must submit an application for withdrawal to the Registrar's Office. Students are liable for all charges applicable at the time of the withdrawal.

If a satisfactory settlement or agreement for settlement is not made with the Business Office within ten days after a payment is due, the student is automatically barred from attendance at classes and will forfeit the other privileges of the School of Medicine.

Withdrawal and Refunds

Students who wish to leave the School of Medicine at any time during the academic year are required to file a letter of resignation with the dean. In addition, an Application for Withdrawal form bearing the proper signatures must be filed with the Registrar's Office. The student must satisfy the authorities that he or she has no outstanding obligations to the school and must return his or her student identification card.

If the above procedures are not completed, the student will not be entitled to honorable dismissal and will forfeit the right to any refunds to which that student would otherwise be entitled. The date used in computing refunds is the date the application for withdrawal is signed by the dean.

Academic Standing. Students who voluntarily withdraw during an academic semester will be given no credit. Students are not permitted to resort to withdrawal in order to preclude current or impending failures. Their standing on withdrawal will be recorded at the Registrar's Office. Students who withdraw from the medical school and later desire readmission must apply to the Committee on Admissions unless other arrangements have been made with the dean's written consent.

Refunds. Students officially withdrawing from the school will be credited for all academic fees charged to them less the matriculation fee, in accordance with the following schedule from the date instruction begins:

Two weeks or less	80 percent
Two to three weeks	60 percent
Three to four weeks	40 percent
Four to five weeks	20 percent
After five weeks	0 percent

Leaves of Absence. Students who are in good standing may be granted one year's leave of absence on request of the dean. Longer leaves can be arranged only under special circumstances with the exception of those students in the combined MD/PhD program.

Required Equipment

Dissecting Instruments. At the beginning of the first year, all freshmen must possess a complete set of dissecting instruments similar to the ones on display in the bookstore.

Microscopes. All freshmen also must provide themselves with a standard microscope. All microscopes must conform to the following specifications:

1. Binocular
2. 10X oculars (wide field oculars are recommended, but not required)
3. Quadruple nose piece
4. Four parfocal objective lenses:
   30 mm., 4X, 0.1 N.A.
   16 mm., 10X, 0 25 N.A.
   4 mm., 43X, 0.65 N.A.
   1.8 mm., 97X, oil immersion, 1.25 N.A.
5. Mechanical stage to accommodate standard size microscopic slides (the stage need not be graduated)
6. Light source (built-in on base is preferable)
7. Substage condenser
8. A carrying case (recommended)

Students are cautioned about purchasing used or odd-lot microscopes since some of the older instruments are in poor optical or mechanical condition. Second-hand microscopes must be approved by the department and students should obtain approval prior to purchase.

Based on the determination of financial need, first-year medical students may qualify for loan of a microscope.

Other Equipment. By the second year, medical students are required to have an ophthalmoscope, otoscope, a blood pressure cuff and stethoscope. The estimated cost of these items, plus other essentials such as lab coats, is $400 to $450.

Financial Assistance

The University of Maryland School of Medicine's financial aid program is available to medical students who demonstrate financial need. Through a varying combination of grants, scholarships, long- and short-term loans and part-time employment, students may receive assistance in meeting educational expenses. In addition to school resources, outside funding agencies make financial assistance available to qualified medical students.

An application for financial aid must be submitted annually, preferably by February 15, to be considered for assistance during the following academic year. Entering students may request financial aid applications from either the Committee on Admissions or the Student Financial Aid Office. Students currently enrolled in the School of Medicine may obtain forms from:

Student Financial Aid Office
University of Maryland at Baltimore
621 West Lombard Street
Baltimore, Maryland 21201

Student assistance is awarded on the basis of demonstrated financial need. Eligibility for financial aid is dependent upon the student maintaining good academic standing and full-time attendance. When determining the amount to be awarded, the financial aid committee considers the following: (1) the income, assets and resources of the student and student's family; (2) support available to the student from nonuniversity sources; and (3) the costs reasonably necessary for full-time attendance at the school.

Renewal of financial aid for succeeding years depends on annual submission and review of a financial aid application, good academic standing, the student's continued financial need, and the availability of funds. A complete description of the procedures used to evaluate applications for aid, the student budgets used and various university, state and federal programs, can be found in the brochure "Financial Aid at UMAB."

Medical School Funds

University Grants. Made to Maryland residents.

Dean's Scholarship. Funds provided the school are awarded primarily to nonresident students.

Desegregation Grants. First-year minority students who are Maryland residents are eligible for these funds. Desegregation grants are normally used to reduce the amount of loan included in the financial aid award.

Health Professions Loans. Medical students are eligible for loans equal to tuition plus $2,500 annually. Interest accrual at 9% and principal payments are deferred until one year after graduation at which time both interest and principal payments begin. Both interest and principal may also be deferred for internships and residencies and for up to three years of service in the uniformed services (including National Health Service Corps) and the Peace Corps.

Medical Alumni Association. Interest-free loans are available.

Work Study. The College Work-Study Program provides jobs for students who need financial aid and who must earn a part of their educational expenses. Jobs are arranged either on- or off-campus with a public or private nonprofit agency. Eligible students may be employed for as many as 20 hours per week.

Private and Endowment Funds. From bequests and private donations, the School of Medicine has established private and endowment accounts to provide fellowships, scholarships and loans for students on the basis of their academic achievement and financial need. The amounts of these fellowships, scholarships and loans vary and are awarded on an annual basis in accordance with school policy.

The availability of support from each of the funds listed below is dependent upon the income generated. Moreover, since many of the funds are governed by specific provisions set forth by the donors, awards must be made accordingly.

Endowed Fellowships

Dr. and Mrs. Frederick J. Balsam Fellowship in Rehabilitation Medicine
Dr. Paul R. Brown Research Fellowship in Genito-Urinary Disease
Jessie M. Cook Research Fellowship in Circulatory Diseases
Issac E. Emerson Fellowship in Pharmacology
Dr. Jose R. Fuentes Memorial Fellowship in Obstetrics and Gynecology
Dr. Howard C. Silver Memorial Student Fellowship in Family Medicine
John F.B. Weaver Fellowship in the School of Medicine

Scholarships

Balder Scholarship Fund
Robert W. Buxton Scholarship
Israel and Cecelia E. Cohen Scholarship
William H. Crim Scholarship
Marcia Thomas Duncan Medical Scholarship
A. Lee Ellis Scholarship
Arthur Wright Erskine Scholarship
John E. Esnard Fund
Sharon Fox Scholarship
Samuel Leon Frank Scholarship
Laurence Gale Memorial Scholarship
Joseph B. Ganey Scholarship
Harry Gudelsky Fund
Horace Bruce Hetrick Scholarship
Margaret A. Hicks Scholarship
Hitchcock (Charles H. and Charles M.) Scholarships
G.D. Jackson Scholarship
Leo Karlinsky Scholarship
Elsie Larrimore Scholarship
Emmett and Ruth Light Scholarship
Alex J. and Clara Maysels Scholarship
James N. McCosh, Jr. Memorial Scholarship
Dr. Frederick N. Nichols, Anne G. Nichols and Edwina Justin Scholarship, effective 1989.

Henry Rolando Scholarship Fund
Morton and Elaine Schwartz Scholarship
David Street Memorial Scholarship
Charles R. Thomas Scholarship
Arnold Tramer Scholarship Fund
Michael Vinciquerra Scholarship
Clarence Geneva Warfield Scholarship
John F.B. Weaver Scholarship
John L. Whitehurst Fund
Sara A. Whitehurst Fund
Randolph Winslow Scholarship
Walter M. Winters Scholarship
Henry Zoller, Jr. Scholarship

Loans

Balder Loan Fund
Class of 1935 Student Loan Fund
Foundation Loan Fund Class of 1934
Gold-Steinberg Memorial Loan Fund
Issac Gutman Loan Fund
Sandra Minna Hoffman Memorial Student Loan Fund
W.K. Kellogg Loan Fund
William and Sarah Kraut Loan Fund
Michael H. Lipman Loan Fund
Joseph Lipskey Loan Fund
Marie K. Manger Loan Fund
Frank C. Marino Loan Fund
Drs. Charles W. and Kathleen B. McGrady Student Loan Fund
Medical Alumni Association Student Loan Fund
Medical School Council Loan Fund
Edward and Lina Meirhof Loan Fund
Memorial Loan Fund—School of Medicine, Class of 1916
Nataro Family Student Loan Fund
Jessie Smith Noyes Loan Fund
Charles Pfizer Loan Fund
Dr. J.M.H. Rowland Memorial Student Loan Fund
Senior Class Loan Fund
Senior Class of 1945 Loan Fund
Christopher C. Shaw—Class of 1931 Loan Fund
F. Mason Sones, Jr., M.D. Memorial Student Loan Fund
Hugh R. Spencer Loan Fund
Webster M. Strayer Loan Fund
Jimmie Swartz Foundation Loan Fund
Wetherbee Fort Loan Fund
Jay Whitman Memorial Student Loan Fund

Outside Sources

Students are encouraged to consider financial aid available through sources outside the School of Medicine. Each of the programs requires a separate application. While application deadlines vary, most are in early spring.

Maryland State Scholarship Board: Professional School Scholarships. One-year grants of $200–$1,000 can be sought for subsequent years by proper reapplication.

Maryland State Scholarship Board: Family Practice-Medical Scholarships. These awards are for students enrolled in the School of Medicine of the University of Maryland and pursuing a Doctor of Medicine degree. A recipient must have been a Maryland resident for five years, have definite financial need and be willing to enter the general practice of medicine serving the state of Maryland in an area of need (bond required). These $7,500 per year awards continue for up to four years and no renewal application is required.

National Medical Fellowships. Need-based awards to minority medical students. For further information and applications write:

National Medical Fellowships
250 West 57th Street
New York, New York 10019

Health Education Assistance Loans are made by private lenders to medical, dental and pharmacy students. The annual legal loan maximum is $20,000 for medical and dental students, $12,500 for pharmacy students; the aggregate maximum is $80,000 for medical and dental students, $50,000 for pharmacy students. The annual interest rate on the loan is variable and may change quarterly. During 1986 the average quarterly interest rate was 9.7%. Interest is not subsidized, and will accrue to the loan balance while the borrower is in school, although payment of principal and interest may be deferred while the borrower is a full-time student.

Supplemental Loans for Students are made by private lenders. Students may borrow up to $4,000 a year with an aggregate limit of $20,000. The interest rate is variable and will be adjusted annually, with a 12% cap. Interest will accrue on the loan from the date of disbursement and may either be paid quarterly or will be capitalized.

Central Scholarship Bureau. Interest-free loans in amounts up to $3,500 per year (maximum total of $8,000) to qualified Baltimore City and Baltimore County residents.

Central Scholarship Bureau
4001 Clarks Lane
108 Bristol House Apartments
Baltimore, MD 21215
301-358-8668.

Loans for Parents are made by private lenders to the parents of students. The terms are the same as for Supplemental Loans for Students.

Curriculum

Broadly stated, the education objectives of the School of Medicine are:

- To educate students intensively and broadly enough for them to achieve a high level of professional competence and social awareness.
- To introduce medical students to the concept of primary care and to provide sufficient opportunities for them to develop the knowledge and skills necessary for the delivery of primary care.
- To provide students at every level of training the opportunities to pursue areas of special interest for intellectual stimulation or career advancement.
- To encourage the formation of a core of highly competent professionals who will practice medicine as generalists or specialists, teach full- or part-time, or continue to add to knowledge through research.

In order to meet changing needs of graduate medical education and health care delivery, the curriculum may vary from year to year. A standing Curriculum Coordinating Committee, composed of year I, year II and clinical year faculty chairpersons, special course chairpersons, faculty members-at-large, and representatives of the student body, has the responsibility of monitoring and reviewing the curriculum regularly and recommending changes whenever they are deemed necessary.

First and Second Years. There are two four-month core sessions in each of the first two years. In January and June of both years (known as minimesters), students take a required minimum of eight elective freshman/sophomore credits before advancing to the third year. These electives may be taken during any one of the four minimesters at the student's and advisor's discretion and as approved by the Electives Committee.

During the freshman year, the following core courses are taught: Anatomy (including gross anatomy, histology and embryology), Biochemistry, Behavioral and Social Science, Physiology and Biophysics (combined), Neurosciences (interdisciplinary), Genetics, and Biostatistics. In addition, during the freshman year interdisciplinary course, Introduction to Clinical Practice, students are exposed to interviewing techniques. Intimate Human Behavior, an interprofessional course under the aegis of the Office of Medical Education, is required of freshman medical students.

During the sophomore year, students enroll in the following core courses: Microbiology, Pathology, Pharmacology and Experimental Therapeutics, Physical Diagnosis, Psychopathology, and Epidemiology and Preventive Medicine. Introduction to Clinical Practice continues in the sophomore year and includes specialty physical diagnosis and medical ethics. There is continued emphasis on clinical correlation throughout the two years with combined instruction by basic and clinical science faculty. This correlative teaching provides the medical student with the full spectrum of the basic science foundation and the clinical science presentation of disease states. Attendance in all small groups, including laboratories and discussion groups, is mandatory in both the freshman and sophomore years.

Recently, time for independent study has been added to the first and second years. Training and certification in cardiopulmonary resuscitation (CPR) also is required before entry into the clinical years.

Third and Fourth Years. The clinical years curriculum was recently revised. The two clinical years are viewed as a single unit with the student assuming progressive responsibility for patient care. The junior clinical experience consists of two 12-week rotations, one

in Internal Medicine and one in Surgery; three six-week rotations in Pediatrics, Psychiatry, and Obstetrics and Gynecology; and two three-week rotations in Radiology, and Neurology. Students take all of these rotations according to individual schedules. The sum of these experiences provides a 48-week introduction to clinical science.

A 36-week block follows that includes a 20-week elective period during which the student may take eight weeks of electives off-campus. An additional eight weeks must be spent in a student internship in one of four clinical fields: medicine, surgery, pediatrics or family practice. Here the student has an opportunity for primary patient care responsibility over a prolonged period of time. These rotations are offered at the University of Maryland Medical System/Hospital and in approved affiliated hospitals. The third segment is a consecutive eight-week experience in an ambulatory setting. These outpatient settings include internal medicine, pediatrics and family practice, with additional experience in epidemiology and preventive medicine. Attendance in all course work in clinical areas is mandatory. The current clinical curriculum frequently involves weekend attendance. In any additional free time, the student may audit available electives.

The 84-week combined clinical years program provides a strong grounding in clinical science with a progressive opportunity for primary patient care responsibility. The curriculum is designed to prepare the medical student for the increasing responsibility demanded by the specialty residency programs adopted throughout the country.

The Curriculum at a Glance

YEAR I *Fall*	*Spring*
Gross Anatomy	Physiology and Biophysics
Histology	Neurosciences
Embryology	Genetics
Biochemistry	Biostatistics
Intimate Human Behavior	Introduction to Clinical Practice
Behavioral and Social Science*	
Minimesters (January and June)	

YEAR II *Fall*	*Spring*
Microbiology	Psychopathology
Pathology*	
Pharmacology & Experimental Therapeutics*	
Physical Diagnosis*	
Epidemiology and Preventive Medicine*	
Introduction to Clinical Practice*	
Minimesters (January and June)	

YEAR III	
Internal Medicine	12 weeks
Surgery and Surgical Subspecialties	12 weeks
Pediatrics	6 weeks
Psychiatry	6 weeks
Obstetrics and Gynecology	6 weeks
Radiology	3 weeks
Neurology	3 weeks

YEAR IV	
Electives	20 weeks
Student Internship (Internal Medicine, Surgery, Pediatrics or Family Practice)	8 weeks
Ambulatory Care (Internal Medicine, Pediatrics or Family Practice)	8 weeks

**Yearlong course*

Combined MD/PhD Programs

Research in human disease requires investigators with interests and training in both basic science and clinical medicine. The primary objective of the MD/PhD Program is to train medical scientists. These individuals will differ from most basic scientists by having the clinical background necessary for the management and investigation of human disease. Equally, the MD/PhD medical scientist will differ from most physicians by having extensive laboratory experience and the scientific background that can lead to the application of a basic scientific approach to studies of clinical problems. To achieve this goal, a flexible program of combined medical and scientific training is provided to highly motivated students of superior research and academic potential. This program utilizes fully the broad range of basic and clinical science opportunities that are available at the University of Maryland.

The MD/PhD Program is offered through the Departments of Anatomy, Biochemistry, Biophysics, Epidemiology and Preventive Medicine, Microbiology and Immunology, Pathology, Pharmacology and Experimental Therapeutics, Physiology, and the Division of Human Genetics as well as the Department of Biological Sciences at the University of Maryland Baltimore County. The School of Medicine also offers an MD/MS in Preventive Medicine.

The degree requirements for the combined MD/PhD and MD/MS programs will be equivalent to those of the separate degree requirements for the Doctor of Medicine in the School of Medicine and the Master of Science or the Doctor of Philosophy in the Graduate School of the University of Maryland. It is anticipated that the MD/PhD degree can be completed within six to seven years.

Although the schedule of training can be flexible, typically entering students complete the two preclinical years as regular medical students and receive graduate credit for many courses taken during this period. The students use minimesters and summers to gain research experience in the basic science departments of their choice. Students are expected to "rotate" through the various laboratories in the selected graduate department in order to facilitate the final choice of a thesis advisor.

After the preclinical years, MD/PhD students enroll as full-time graduate students for approximately two years, taking required graduate courses and seminars, conducting research and focusing on dissertation research. Subsequently, they begin the clinical clerkships using elective time during the clinical years to complete PhD research. This sequence is general; a student may complete the program in a different sequence, depending on the schedule developed in consultation with the student's advisor.

Applicants to the MD/PhD Program are required to meet the admissions requirements of the School of Medicine and the Graduate School of the University of Maryland. Qualified candidates are interviewed and selected by the MD/PhD Program Advisory Committee. Applications will be considered from qualified juniors or seniors at any accredited university, as well as from medical students currently enrolled at the University of Maryland. In addition, applications will be considered from students currently enrolled in a graduate level program (i.e., MS, PhD) at the University of Maryland School of Medicine or other accredited universities. An application form is included in the medical school admissions packet.

A small number of applicants, not to exceed three from each entering class, may be awarded a waiver of tuition (at the financial level of Maryland resident tuition) for a maximum of six years. The waiver will be awarded based upon the student's academic excellence. A stipend may be provided by the research sponsor during the PhD or MS in Preventive Medicine portion of the program.

For more information contact:

Stephen R. Max, PhD
Professor, Neurology and Biochemistry
Director, MD/PhD Program
University of Maryland School of Medicine
655 West Baltimore Street
Baltimore, Maryland 21201
(301) 328-3990

Short Term Research Training Program

The School of Medicine is committed to training physician-scientists. The school recognizes the value of maintaining the link between the treatment of patients and the science which enables patient care to advance. By bridging the two areas, the physician-researcher is in an ideal position to translate research into clinical application and patient problems into laboratory investigation.

In an effort to enhance student involvement in biomedical investigation, the school encourages students to participate in supervised research projects through the Short Term Research Training Program (STRTP), which is supported in part by a training grant from the National Institutes of Health. Major areas of research interest at the School of Medicine include: cancer and environmental diseases; molecular biology; neuroscience; cancer; infectious and immunologic diseases; and endocrinologic and cardiovascular diseases. Approximately 80% of the research support at the School of Medicine is devoted to work done in these broad areas.

Fellowships are awarded on a competitive basis and provide $200 per week for 8 to 12 weeks of full-time participation. These experiences are available to incoming students during the summer before their freshman year, and to medical students during the summer between their first and second years or during their fourth year. STRTP funds are not available to students engaged in doctoral dissertation research or to students with alternative sources of research funding, except that the program may supplement some alternate sources. Students selected for the program participate in a series of seminars and a short course including research methodology and ethics. They also present their research to students and faculty during the summer and on Medical Student Research Day, which is held each spring.

Travel awards are available to qualified participants by separate application to encourage students to attend and present their results at national scientific meetings.

For more information contact:

Jordan E. Warnick, Ph.D.
Associate Professor, Pharmacology and Experimental Therapeutics
Director, Short Term Research Training Program
University of Maryland School of Medicine
655 West Baltimore Street
Baltimore, Maryland 21201
(301) 328-7476

Graduate Programs

The University of Maryland Graduate School, Baltimore, created in 1984 by the merger of graduate education and research administration and development of the University of Maryland's Baltimore and Baltimore County campuses, represents a milestone in graduate education in Maryland. The linkage broadens the scope of graduate offerings in the region, enhances the collective research base and facilitates collaborative efforts that cross disciplines in which each campus has strengths.

The new University of Maryland Graduate School, Baltimore, offers master's and doctoral programs in over 50 disciplines spanning health and human services, biological and physical sciences, arts and humanities, social and behavioral sciences, computer sciences and engineering, and policy sciences. New graduate programs have been designed to meet changing educational and professional needs in dental hygiene, pharmacy administration, preventive medicine, human genetics, toxicology, chemistry, emergency health services, information systems/operations analysis and intercultural communications.

The level of outside funding for research has risen dramatically in recent years with particular expansion of research taking place in the School of Medicine. Contract and grant awards in 1986 totalled $47 million for the two campuses, a 22% increase over the previous year, with the School of Medicine awarded $37.6 million of this total.

The following graduate programs are offered in the biomedical sciences and related fields:

Anatomy	MS, PhD
Applied Physics	MS
Biological Sciences	MS, PhD
Biological Chemistry	PhD
Biophysics	MS, PhD
Chemistry	MS, PhD
Epidemiology and Preventive Medicine	MS, PhD
Human Genetics	MS, PhD
Operations Analysis	MS, PhD
Microbiology and Immunology	MS, PhD
Pathology (Medical)	MS, PhD
Forensic Toxicology	MS, PhD
Medical Technology	MS, PhD
Pharmacology and Experimental Therapeutics	MS, PhD
Physiology	MS, PhD
Psychology	
Applied Developmental	PhD
Community Clinical	MA
Human Services	PhD

Studies also are available in the area of Molecular and Cell Biology.

Students pursuing graduate work must meet the requirements of the Graduate School and the department. Applications and a catalog of program descriptions and courses can be obtained from:

Office of the Vice Chancellor for Graduate Studies and Research
The University of Maryland Graduate School, Baltimore
Administration Building
5401 Wilkens Avenue
Baltimore, Maryland 21228

Residencies and Fellowships

Graduate specialty training for residents and fellows is offered through integrated and affiliated programs. The majority of clinical training occurs at the University of Maryland Medical System, the Baltimore Veterans Administration Medical Center and Mercy Hospital. However, a network of affiliated community and state hospitals is responsible for much of the variety and depth offered to residents and fellows.

Integrated programs are approved by the Council on Medical Education of the American Medical Association.

The approved first-year resident (PGY 1) positions are filled through the National Residency Matching Program.

Included are categorical (rotating and straight) residencies in anesthesiology, family medicine, medicine, neurology, obstetrics and gynecology, pathology, pediatrics, and surgery.

Resident and/or fellowship positions are available in the following specialty and subspecialty areas:

Department of Anesthesiology: anesthesiology

Department of Diagnostic Radiology: radiology, nuclear medicine, and angiography

Department of Epidemiology and Preventive Medicine: preventive medicine, gerontology

Department of Family Medicine: family medicine and geriatrics

Department of Medicine: cardiology, dermatology, endocrinology, gastroenterology, hematology, infectious diseases, internal medicine, nephrology, oncology and primary care

Department of Neurology: neurology and neurorehabilitation

Department of Obstetrics and Gynecology: obstetrics and gynecology, reproductive endocrinology, maternal fetal medicine and genetics

Department of Ophthalmology: ophthalmology

Department of Pathology: anatomic/clinical pathology, anatomic pathology, clinical pathology, neuropathology, immunopathology, forensic pathology, and environmental pathobiology research

Department of Pediatrics: pediatrics, adolescent medicine, pediatric allergy, behavioral and developmental pediatrics, cardiology, endocrinology, infectious diseases, and neonatology

Department of Psychiatry: psychiatry, child psychiatry, and geropsychiatry

Department of Radiation Oncology: radiation therapy

Department of Surgery: general surgery, neurosurgery, orthopaedic surgery, otolaryngology, thoracic and cardiovascular surgery, and urology

Correspondence, applications and residency inquiries should be addressed to the chairperson of the respective department or program at: University of Maryland Medical System/Hospital, 22 South Greene Street, Baltimore, Maryland 21201. Appointments to residencies are made by the chief executive officer of the hospital, upon the recommendation of the appropriate clinical department chairperson.

Program of Continuing Medical Education

The University of Maryland School of Medicine is concerned with three phases in the education of physicians: undergraduate, graduate and postgraduate or continuing medical education. To fulfill its role in the last of these, the School of Medicine maintains a program of continuing medical education (CME) which offers substantive and accessible training to the state's physicians. The CME Program is administered by the assistant dean for continuing medical education and a full-time staff, with the assistance of a faculty advisory committee. The programs offered are approved by the American Medical Association for credit in Category 1 (towards its Physician's Recognition Award) and by the Accreditation Council for Continuing Medical Education. To the greatest extent possible, programs are structured around the educational needs of practicing physicians. Both the type and content of the instructional programs, as well as their instructional design, are varied in order to satisfy the learning needs of as many physicians as possible. Courses and other educational activities sponsored by this program also can be used by physicians to meet the Maryland requirements for relicensure.

For additional information please contact:

Program for Continuing Medical Education
University of Maryland School of Medicine
10 South Pine Street
Baltimore, Maryland 21201
(301) 328-3956

The University of Maryland Medical System

The University of Maryland Medical System is a private, nonprofit institution comprised of the University of Maryland Hospital, the University of Maryland Cancer Center, and the Shock Trauma Center and the Institute of Psychiatry and Human Behavior. Established as a private institution in July 1984, it was previously an agency of the state of Maryland. The Medical System is the primary clinical setting for the University of Maryland School of Medicine. It is dedicated to providing exemplary health care for the people of Maryland, to preparing students and physicians in training for the practice of medicine and the allied health professions, and to carrying out research to improve the quality of health care.

Since its founding in 1823, the hospital has become a major tertiary care referral center which offers the full range of specialized medical and surgical services. In recent years, as the number of health care facilities in urban centers has decreased, the Medical System has assumed increasing responsibility for its surrounding community. As a result, more than 100,000 city residents look to the University of Maryland Medical System as their primary source of health care.

The 747-bed hospital is one of the nation's busiest. In one year, it records approximately 23,000 inpatient admissions, 150,000 outpatient visits, nearly 40,000 emergency room visits and 2,000 births. Every day, nearly 5,000 people pass through the hospital's doors. The senior medical staff—more than 600 physicians—is comprised of the clinical faculty of the School of Medicine who supervise training of the more than 400 graduate physician house officers as well as the medical students.

Because of its combined professional and academic environment, many outstanding treatment programs and research facilities have been developed at the Medical System. The Shock Trauma Center of the Maryland Institute for Emergency Medical Services Systems and the University of Maryland Cancer Center are two prime examples.

The Shock Trauma Center, linked with the Maryland Institute for Emergency Medical Services Systems, a statewide network of emergency communications, transportation and medical care facilities, is second to none. It provides high-speed emergency service to nearly 2,000 critically injured persons each year—the most severe multiple trauma cases in the state—with an impressive 89% survival rate. A heliport adjacent to the hospital facilitates rapid transport of these patients from around the state.

In the Cancer Center, collaboration between research scientists and research clinicians has resulted in notable efforts in treating breast, lung, and blood-related cancers. It was at the Cancer Center that researchers pioneered the freezing of a leukemia patient's own platelets for later use during relapses. The center's physicians work closely with other oncology departments within the hospital, tailoring the balance among surgery, radiation, and anticancer drugs for each patient's optimal treatment plan.

The hospital's intensive care units serve seven medical specialties. It's neonatal care nursery serves critically ill newborns airlifted from throughout Maryland.

An organ transplant service offers the latest surgical techniques for patients suffering from kidney and pancreatic diseases. The hospital recently installed new cardiovascular laboratories which support the state's comprehensive cardiology program for children and adults. The Stroke Data Bank, part of the Medical System's Stroke Center, is one of only four in the United States. The institution's neurosurgery division has attracted national attention for its innovative techniques in the treatment of brain tumors. The high-risk pregnancy, multiple sclerosis and magnetic resonance imaging centers offer the most advanced technology possible; the state's only pediatric dialysis unit opened at the Medical System in 1987.

Coexistent with these technologies is the Medical System's commitment to providing alternatives to specialized medical care when appropriate. This is demonstrated by the presence of the University Health Center, an ambulatory care facility that incorporates family practice, general adult medicine and several specialty services. Established in 1984, it is located one block from the Medical System building. Ambulatory care also is provided in the hospital by separate emergency units for children and adults.

The University of Maryland Medical System has grown both professionally and physically during the years. The move from century-old buildings to modern facilities brought active cooperation with many of the university's professional schools. Today, the Medical System is the training site for pharmacists, social workers, dentists, nurse practitioners and other health professionals and technicians. This interprofessional environment is a unique and valued characteristic of the University of Maryland Medical System.

Affiliations

A broad spectrum of clinical opportunities are available ranging from basic health care to complex medical problems requiring expensive, highly specialized facilities and staff. The majority of clinical training occurs at the three major affiliated hospitals: the University of Maryland Medical System, Mercy Hospital and the Baltimore Veterans Administration Medical Center. These are complemented by a network of affiliated community and state hospitals.

Crucial to medical care today are the community hospitals where most primary and secondary level health care problems are seen. Recognizing this, the medical school has developed a network of institution-to-institution affiliations with community hospitals to augment the educational experience at the undergraduate, graduate and postgraduate levels. These include Maryland General, St. Agnes, South Baltimore General and York (Pa.) Hospitals. Each has made a major commitment to being a health education center, firmly believing that the end result of a teaching environment is better patient care. Central to this are programs devoted to the continuing education of all staff. Moreover, all have well-developed graduate education programs which attract interns and residents who wish to train in a community hospital atmosphere. In most departments these hospitals have recruited full-time educators who hold academic appointments as full-time faculty members and participate in activities of the medical school.

A highly successful network of state, community and federal psychiatric facilities has resulted in a widely acclaimed statewide program for psychiatry training. In addition to the University of Maryland Medical System's Institute of Psychiatry and Human Behavior, affiliations integral to this success include the Walter P. Carter Center and Sheppard Pratt Hospital (a private psychiatric hospital); Springfield, Spring Grove and Rosewood state mental health hospitals; and Perry Point VA Medical Center.

Expanded clinical experience coordinated through the campus Geriatric Area Health Education Center, is offered at the John L. Deaton Medical Center, Harbor Health Care Center, the Waxter Center for Senior Citizens and the Baltimore Veterans Administration Medical Center.

Clinical experience in rehabilitation is now available through the Montebello Rehabilitation Center, a state facility; the James L. Kernan Hospital for patients with specialized orthopaedic problems, both affiliates of the University of Maryland Medical System, and the Fort Howard VA Medical Center.

The present Baltimore Veterans Administration Medical Center is an active 290 bed tertiary care inpatient hospital which also provides 170,000 primary and secondary care ambulatory visits yearly. The close integration at the faculty, resident and undergraduate levels in the disciplines of medicine, neurology, pathology and psychiatry will be augmented in the near future by departments of anesthesiology, radiology, radiation oncology and surgery as the VA prepares to move into a new facility immediately adjacent to the University Hospital and School of Medicine. Completion date for the new 324-bed facility is 1990.

Area Health Education Center Program

One of the University of Maryland at Baltimore's commitments to improving health care and delivery programs in primary care is the Area Health Education Center (AHEC) program.

The AHEC program has been developed to provide a comprehensive health care education program for undergraduate and graduate medical students, as well as for students from the other UMAB professional schools. AHECs are described as "multiple health education and training centers

which attract students, interns and residents to the several geographic areas, thereby attracting increased numbers of practicing physicians, encouraging development of health care facilities, providing for the training of additional numbers of allied health care professionals and increasing capabilities for the existing program of graduate and continuing medical education and health training."

There are two AHECs currently operating in the state, one rural and one geriatric. The first AHEC was established in Cumberland, a rural community in Western Maryland. This center affords students the opportunity to understand and experience the valuable and rewarding benefits of delivering primary health care in a rural environment. The Geriatric AHEC, located in Baltimore City, serves the city's aged population through an interdisciplinary approach to health care management.

It is a matter of school policy that students are required to spend eight weeks of their senior year in clinical education at an ambulatory site. Some students elect to spend this mandatory rotation at one of the AHEC sites. In addition, senior medical students may choose a rotation in either of these centers as an elective in primary care. It is hoped that these experiences will encourage students to consider practice in similar settings and that students will gain a firm appreciation of the special health needs of these populations.

Office of Medical Education

The Office of Medical Education serves all departments of the medical school as a consultative unit to the following areas:

Instructional design, implementation and evaluation.

Media systems design and hardware installation, e.g., operating room TV.

Faculty development regarding instructional techniques, design, evaluation and technology.

Educational resources including audiovisual aids, instructional television and computer-assisted instruction.

Development and implementation of computer-based instructional systems.

Assistance in development of special educational programs.

Assistance in curriculum development and evaluation of curricular programs.

Evaluation of instructional systems and techniques.

Coordination of library facilities to include the storage and retrieval of all nonprinted educational material and software; operation and maintenance of the Learning Resources Center and the Clinical Media Library.

Maintenance, distribution and operation of projection and related audiovisual equipment for use in teaching.

Tutorial assistance and study skills.

Research in medical education, instructional design, evaluative techniques and educational technology.

Production and distribution of videotaped programs for local, regional and national use.

Consultation with the faculty and staff of the medical school as well as the other UMAB schools in all areas of media production.

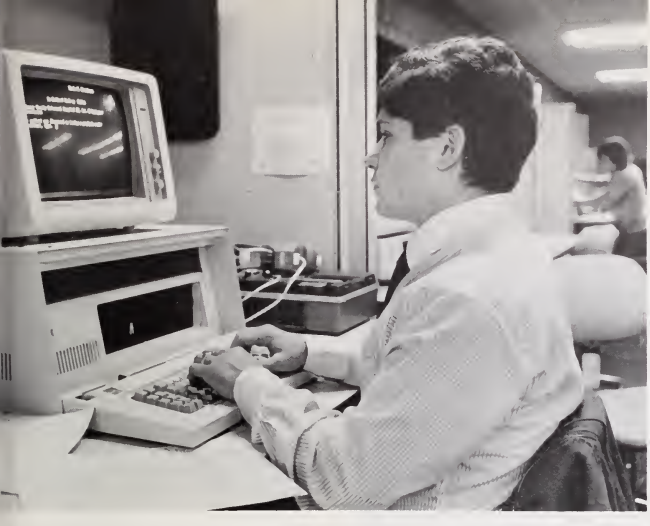
Classroom scheduling.

The Office of Medical Education sponsors four academic support services for medical students. These services are administered by the assistant dean for medical education (Room 1-008, BRB).

Prematriculation Summer Program: This six-week program helps incoming freshmen develop learning skills for coping efficiently and effectively with the medical curriculum. Skill in understanding and memorizing information, preparing and taking exams, and time management are developed in a series of workshops during the first week. Students then practice applying these skills in learning selected topics during a simulation of the fall semester schedule. Up to 20 students attend on a voluntary basis. The program is supported by funds from the dean and the associate vice chancellor, Office of Student Affairs Coordination. No tuition is charged for participation.

Learning Skills Orientation. This one-day workshop on learning skills, exam taking, and time management is presented just prior to freshman orientation. The workshop is open to the entire incoming class on a voluntary basis. Students pay for the workbook used to structure activities and provide immediate feedback on development of their skills.

Peer Tutoring Program: A peer tutoring service is available during the school year to students in the basic science years who are experiencing academic difficulty. Sophomore, junior, and senior medical students who have performed very well in these basic science courses serve as tutors. Most students in difficulty who request and obtain a tutor early in the semester pass the specific courses successfully. The peer tutoring service is provided at no charge to students. The tutors are paid through special funds provided by the administration to the Office of Medical Education.



Academic Counseling: Academic counseling on an individual basis is provided by the assistant dean for medical education. Students may be contacted directly on the basis of marginal performance on course exams, referred by faculty or other administrators, or make an appointment themselves to discuss ways of improving their academic performance. There is no charge for this service.

Illustrative Services: The department of illustrative services is a functioning component of the Office of Medical Education. The department supplies audiovisual aids to medical school faculty and staff for teaching, research and publication purposes. The primary services are illustration and photography.

Illustration. Services include comprehensive renderings of surgical and clinical techniques, anatomical renderings, statistical charts and other graphic representation. This section also handles simple and comprehensive design and finishing of flyers, brochures, programs and posters; and layout and paste-up for offset printing and photographic copying. In addition, they design displays and exhibits.

Photography. The division handles photographic copying of flat material such as written matter, x-rays, laboratory tracings and data; photography of specimens, equipment set-ups, surgical, clinical and laboratory activities; and portraiture for school-related purposes. The division also does slide duplication and motion picture photography and acts as a collection station for commercial processing of color photography.

Learning Resources Center and Clinical Media Library. The Learning Resources Center is a basic sciences media library providing students with access to many self-instructional materials including video-tapes, slide-tapes, computer-assisted instruction, lecture tapes and reference books. A Clinical Media Library, located in the Frank C. Bressler Research Building, houses materials similar to those of the Learning Resources Center, but with a clinical orientation.

Computer Learning Center (CLC): To make the benefits of information technology available to medical students the School of Medicine staffs and maintains the Computer Learning Center (CLC). Classroom instruction is provided in addition to individual access to microcomputers and support of their use by medical students and students of other schools. The CLC is located on the second floor of the MSTF.

Health Sciences Library

The Schools of Medicine, Dentistry, Pharmacy, Nursing, and Social Work and Community Planning, as well as the Graduate School and the University of Maryland Medical System/Hospital are served by the Health Sciences Library. It is one of the oldest medical college libraries in the country, dating back to 1813 when the University of Maryland purchased Dr. John Crawford's personal collection to form a medical library.

The library currently serves as the Regional Medical Library for region II, an area covering ten southeastern and Atlantic states and the District of Columbia. It contains more than 270,000 bound volumes, with 3,100 current periodical subscriptions. The collection size ranks the library among the 15 largest health sciences libraries in the United States. Its collection is more varied than that of most other medical libraries, with the subject scope encompassing the basic biomedical and health-related sciences as well as the social and behavioral sciences. Thus, in providing literature to support the teaching, research and health care programs on the campus, the library makes available a wide range of materials to the medical community.

The Health Sciences Library has installed one of the most advanced automated library systems available in the country. Circulation services are completely automated as is the catalog which provides access to library holdings. The Online catalog offers more searching options than the card catalog and can be accessed via library terminals, on-campus terminals linked through the campus computer center, and personal terminals or microcomputers with dial-up capabilities.

HSL/MEDLINE provides convenient access to the journal literature as a component of the library's automated system. This database can be accessed the same way as the online catalog. It is easy to use and is designed for those who need information quickly.

The library's information services staff provides customized subject bibliographies from over 200 databases in the sciences and the social sciences including MEDLINE, Biological Abstracts, Toxline, and Psychological Abstracts through the Computerized Reference and Bibliographic Services (CRABS).

The Health Sciences Library has established an innovative outreach service program which adds a new dimension to library service on campus. Each of six information specialist librarians is assigned to one of the professional schools or the hospital. The information specialists participate in collection evaluation and development in the respective subject areas related to their assigned professional school, teach seminars and offer orientations in information retrieval and serve as information consultants. The reference services staff also provides traditional reference service.

Interlibrary loan service is available for needed materials not held in the library collection.

Self-service photocopy machines are available on all floors of the library. The library is open 8:00 a.m.–10:00 p.m. (Monday–Friday), 9:00 a.m.–5:00 p.m. (Saturday) and 12:00 noon–8:00 p.m. (Sunday). Special holiday and summer hours are posted.

Information Resources Management Division

To make the benefits of information technology available to enrolled students on the UMAB campus, the Information Resources Management Division (IRMD) staffs and maintains a Technology Assisted Learning (TAL) Center in the dental school, which is available to all students. This center provides access to microcomputers and offers support in their use. Information on services and hours can be obtained by calling the TAL Centers (328-4493), or the IRMD Help Desk (328-4488).

In addition, the IRMD offers access to mainframe computers on both the UMAB and College Park campuses through the facilities of Academic Computing. The system has the capabilities provided by Basic, Fortran, Pascal and PL-1 languages as well as statistical analysis packages SPSS, SAS and BMDP. To gain access to this unit, a student must open an account. Call 328-2383 for details. Both units offer instructional services as well as help desk and first aid functions to assist students in using computing and associated technologies to full advantage.

Medical Alumni Association

"The alumni of the School of Medicine of the University of Maryland desiring to further the interest and advancement of the University of Maryland School of Medicine and perpetuate the associations made during the medical school period. . . ." With that preamble to its constitution, the Medical Alumni Association has, since 1895, served all graduates, students, faculty, staff and physicians affiliated with the School of Medicine.

The Medical Alumni Association office is located in Davidge Hall at 522 West Lombard Street and is open weekdays from 8:30 a.m. until 4:30 p.m. Among its many activities the Alumni Association coordinates the Alumni Weekend Reunion program in early May and the five-year class reunions held at that time. The association publishes the quarterly *Bulletin* and distributes it to all alumni, faculty and students.

Since the association inaugurated the Annual Giving Drive in 1978, donations totaling more than $4 million have been received. The annual phonothon has been responsible for 75% of the annual giving total. Much of its success is attributed to the 100 alumni volunteers who spend at least one evening contacting former classmates.

One million dollars in alumni support was designated for the restoration of Davidge Hall which was completed in 1982. Davidge Hall is now a "living museum" displaying a valuable collection of antique instruments, portraits and other memorabilia representative of the history of medicine at Maryland and the pioneers in medicine at this institution.

The association also has been instrumental in securing a number of lectureships, student loan funds and a large student aid grant. In 1958 the alumni association established a no-interest student loan fund which has grown over the past several years through strong alumni support. Currently $140,000 is on loan to medical students in need of financial assistance.

In an effort to promote better communication among students, faculty and the alumni association, social evenings are hosted by the association to bring together faculty, alumni and members of each medical school class. Annually the association hosts the freshman pizza party, the sophomore beef and beer bash and the junior oyster roast, and during alumni week the graduating seniors and their guests enjoy dinner and dancing at the annual alumni banquet.

The Medical Alumni Association is self-supporting and all expenses incurred in its operation, including alumni and student activities and publication of the *Bulletin*, are supported by membership dues. All faculty and staff members of the School of Medicine and University of Maryland Medical System are eligible for association membership. The association's primary function is to provide service to alumni, students and faculty.

Office of Student Affairs

The Office of Student Affairs is designed to provide guidance, advice, help and administrative services to students enrolled in medicine. In addition, the office is responsible for monitoring student progress and advancement, registration, graduation and all aspects of student life related to undergraduate medical school. To this end, the office employs one full-time associate dean and one full-time assistant dean, three part-time assistant deans, two coordinators and a clerical staff.

While the entire staff is available to help all students in any area, some members also assume a specialty area within their overall functions. These specialty areas include minority affairs, senior year elective advising, student fellowships, national residency programs advising, counseling and administration of the students' Vertical Advisory System.

Elective Program. The Office of Student Affairs compiles course offerings, schedules courses and changes of electives, and provides for both evaluation of a student's performance during electives and evaluation of the electives taken.

Office of Minority Affairs. The office coordinates activities concerned with the recruitment and retention of minority medical students. Some specific goals are to increase the number of minority students entering medical school and to provide all reasonable assistance necessary to facilitate their positive progress through the School of Medicine. To this end, workshops, academic and personal counseling, group and individual tutorial services, and assistance in securing financial aid and summer employment are offered.

Residency Advisory System. The residency advisory system provides assistance in specialty career planning and guidance in the selection of suitable residency training programs. This service is available individually to all members of the junior and senior class.

Vertical Advisory System. Students have the opportunity for close personal association with a team of faculty advisors and upperclass students during each of the four years of medical school. This advisory system, administered through the Office of Student Affairs, provides a helpful, ongoing interchange concerning academic, social, personal and career problems and opportunities.

Financial Assistance. Information regarding the types of aid available to medical students is detailed in the financial information section.

Human Dimensions in Medical Education (HDME) Program

The HDME Program provides opportunities for informal activities among students and faculty outside the classroom setting. These range from social gatherings to small group discussions of concerns and feelings related to the personal and professional aspects of medical education and practice.

Students may elect to participate in the HDME Program at any point in their medical school career. Many enter the program by attending the pre-freshman orientation retreat held in late August. The retreat is attended by students from all levels of training, faculty members, and in many cases, spouses or close friends. Participants thus are provided an opportunity to get acquainted in an informal and intimate off-campus setting. Much of the time at the retreat is spent in intensive small group sessions. Topics of discussion are determined in each group, but typically include adjustment to medical school, the impact of a medical career on domestic life, and the problem of setting priorities among various professional and personal demands. Recreational activities also are included in the four-day experience.

Students in the HDME Program also participate in the Vertical Advisory System (see Office of Student Affairs), but normally are assigned faculty advisors within the HDME Program.

HDME was conceived at The Center for the Study of the Person in La Jolla, California. The program is planned and operated locally by student-faculty committees. One goal of the program is to provide an environment in which students and faculty advisors can develop a bond during the four years of medical school. Another desired outcome is the development of effective communication and listening skills that will enable medical students, house officers and faculty members to become better health care providers.

Student Government

Student Welfare and Activities. The deans, class officers and other student leaders meet regularly to discuss the concerns and general welfare of the students.

Judicial Board. The medical school community adheres to a general statement of ethical principles which are subject to periodic review by a judicial board. This board is chaired by a faculty member appointed by the dean, and is composed of elected representatives from the faculty, the student body and the house staff. The board investigates any alleged infractions of the ethical code and conducts appropriate hearings. The board's findings and recommendations are then forwarded to the dean for final disposition.

Student Council. The Student Council is the official representative body of medical, medical technology and physical therapy students. All students of these professions become de jure members of the student body at registration upon payment of the student activities fee. Student Council members are elected by the classes of the student body with one representative per 50 members (or fraction thereof), the first representative being the duly elected president of the class.

The Student Council disburses monies from the student activities fund according to the council's financial disbursement guidelines; defines areas of school-wide interest; and coordinates support for related activities through policy guidance, funding and promotion.

Student Publication

Terrae Mariae Medicus, the yearbook, is published annually at the discretion of the medical school's senior class. Since 1896 the volume has provided wide coverage of student life. Each senior receives a yearbook, the cost of which is included in the student activities fee.

Student Organizations

Alpha Omega Alpha. The Beta chapter of Maryland was established at the University of Maryland in 1949. Medical students possessing outstanding qualities of moral integrity, scholarship and leadership are elected to membership in their third or fourth years. The society sponsors an annual lectureship, a forum for the presentation of medical student research and chapter meetings on topics of social, educational and philosophical interest to medical students and faculty.

American Medical Student Association (AMSA). The AMSA chapter at the University of Maryland School of Medicine is a chartered member of the national AMSA, an organization begun in 1951 to channel student energies into improving the delivery of health care in the United States. Its concerns include a wide variety of health issues, from manpower recruitment, education and utilization, to legislation and planning of innovative methods of raising the level of health care in the country. Membership is open to all medical, allied health professions and pre-med students on an affiliate basis. Nationally, AMSA offers students the opportunity to design, administer and participate in programs and projects that increase the student's awareness of the multiplicity of factors that determine levels of health. Locally, AMSA sponsors freshman orientation for the medical school, fosters social interaction among medical students and sends delegates to regional conferences and national conventions. Each year AMSA, together with the senior class, selects the teaching faculty member to receive the Golden Apple Award in recognition of teaching excellence.

American Medical Women's Association (AMWA). The University of Maryland American Medical Women's Association, organized in 1979, is a chartered junior branch of AMWA sponsored by the Maryland AMWA. AMWA is a national association organized to promote the interests of women physicians and to provide for a sharing of mutual interests and friendship. Maryland has an active regional branch, composed of women physicians practicing in this state.

Family Practice Club. In 1969, a group of medical students formed this organization to increase the awareness of the new specialty of family practice and to provide activities related to it. Through the club's summer preceptorship program and its monthly meetings, students interact socially with practicing family physicians in the discussion of topics of current interest in family medicine. The Maryland Academy of Family Physicians and the school's Department of Family Medicine are both very active in their support of the club's activities.

Student National Medical Association (SNMA). The University of Maryland SNMA chapter was organized in 1970 by the minority medical students. The organization's general goals focus upon alleviating the crisis of health care delivery in minority groups of the American population by increasing enrollment and decreasing the attrition rate of minority students in medical schools. One specific goal of the national organization is a program directed at the problem of sickle cell anemia. On campus, the local chapter gives a voice to problems facing minority students in medicine in general, and at this medical school in particular. The group also provides pertinent activities and functions for the well-being of its members.

The objectives of AMWA's junior branch include: fostering the association of women in medicine; encouraging social and cooperative relations; aiding women medical students; encouraging and supporting premedical women; promoting the responsiveness of medical education to the needs of women; and bringing medical students into association with the AMWA.

Campus Health Services

The School of Medicine arranges health care for its students through Campus Health Services (CHS), where primary care is provided by the faculty of the Department of Family Medicine with the support of nurse practitioners.

Gynecological services and psychiatric counseling services are provided. The services of other subspecialists are provided through referrals to the appropriate faculty members.

Hospitalization, if required, may be provided by the Family Medicine faculty and other subspecialists, or by referral, at the student's request. All forms of counseling are available, at no charge. All care is confidential and records are never released without the student's written permission.

All students are required to have Blue Cross hospitalization insurance or its equivalent and must produce proof of such membership at the time of registration. A special student policy is available to all students enrolled in the medical school. Detailed information regarding its provisions may be obtained from Campus Health Services and/or registration packets.

Also required for registration and enrollment are a physical examination, hepatitis B immunization and tuberculin skin test and/or chest x-ray, as scheduled by Campus Health Services. Using CHS forms, the physical examination may be performed by a personal physician at student cost, and the forms returned to Campus Health Services. Examination will include eye and ear testing. Abnormalities found during the examination are discussed with the student. All students must complete the physical examination before registration is complete.

Since medical school is the entry point into a lifetime as a health professional, students undertake a three-dose course of immunization against hepatitis B. Hepatitis is very much an occupational illness of physicians, and is of serious consequence to many nonimmune physicians. The series is given at cost, and the protection is important physically and psychologically. Immunization is scheduled for each class through Campus Health Services.

In order to avoid absences during the academic year, prospective students are advised to have any known health problems under control and listed in their medical history before entering the School of Medicine. Campus Health Services, by prior arrangement and knowledge, will treat chronic conditions contracted by students prior to admission or will extend treatment to acute conditions developed in the period between academic years.

All students are required to pay a health fee at registration. This fee covers all regular visits to Campus Health Services during the school year. Any necessary diagnostic studies will be at the expense of the student unless the studies are covered by insurance. A small fee ($9 per semester) will provide the student with coverage for all ambulatory lab charges and may be paid at registration.

Emergency room visits for other than life-threatening emergencies will not be covered by Campus Health Services without prior telephone approval by the medical admitting officer.

A student's spouse or other members of the family are eligible for health care at rates reflecting professional courtesy.

Housing

The University of Maryland at Baltimore maintains a campus housing program as part of the total educational experience. Two campus housing facilities offer a variety of living styles at different rates: Pascault Row, a new, fully furnished apartment complex consisting of 81 units with space for 178 students, and the Baltimore Student Union coeducational dormitories. The majority of students, however, live off campus.

Application forms and information are available by writing:

Director of Residence Life
University of Maryland at Baltimore
Room 108, 621 West Lombard St.
Baltimore, Maryland 21201

Athletic Facilities

The campus has a recreation center located atop the Pratt Street Parking Garage. The facility is equipped with two squash courts, two racquetball/handball courts and two basketball courts which also may be used for volleyball. There are also two 15-station Universal Gyms. Each locker room has a sauna. The center is open to UMAB students, faculty, staff and alumni. UMAB students with a current and valid ID are admitted free of charge. Faculty, staff and alumni are assessed a modest annual membership fee. For additional information, contact the athletic manager at 328-3902. There are also several athletic clubs in the area.

Baltimore Student Union

The Baltimore Student Union is a cultural and social center for students, faculty, staff, alumni and guests. Activities and services of the union include meetings, dances, receptions, movies and other forms of indoor activity. The multi-purpose Baltimore Student Union houses the campus offices of Student Affairs, the University Student Government Association, Credit Union, Pub, bookstore and lounge space, in addition to dormitory-style accommodations for UMAB students. The union provides many services for the campus community—bulletin boards, photocopying machines, telephones, publicity rack, food vending machines and video games, ride board, as well as special functions and housing information on and off campus.

The meeting rooms on the second floor provide accommodations for groups of 12 to 150 people. Lecterns, chalkboards and some audiovisual equipment are available. The rooms may be reserved through the Student Union Office (328-7766).

ANATOMY

Professor and Chairman
Lloyd Guth, MD
Professors
E.C.B. Hall-Craggs, MD, PhD
Tae H. Oh, PhD
Marshall L. Rennels, PhD
Judy M. Strum, PhD
Ludwig A. Sternberger, MD
Adjunct Professor
George R. Martin, PhD
Associate Professors
Larry D. Anderson, PhD
Charles P. Barrett, PhD
Edward J. Donati, PhD
Anne N. Hirshfield, PhD
George J. Markelonis, PhD
Karl F. Mech, Sr., MD
David W. Pumplin, PhD
Rosemary P. Rees, PhD
Charles R. Shear, PhD
Nancy H. Sternberger, PhD
Assistant Professors
Barbara S. Bregman, PhD
Mary B. Clark, PhD
Adjunct Assistant Professor
John P. Petrali, PhD
Instructor
Steven J. Poliakoff, MD
Research Associates
Dennis J. Hoover, PhD
Ellen Kunkel-Bagden, PhD

The Department of Anatomy provides instruction in all the anatomical sciences: gross anatomy, microscopic anatomy, neurologic anatomy and developmental anatomy. Courses are offered to medical students and to graduate students working toward an MS or PhD degree. The educational goal of the department is to provide a basic understanding of the structure of the human body as related to normal function. Whenever possible, important clinical implications and research applications of the material under study are emphasized. The study of human structure includes all levels from gross morphology seen in the dissecting room to the fine structure as revealed with the electron microscope. The neuroanatomy course is taught in an integrated format with neurophysiology, neurochemistry, neurobiology and clinical neurology.

A knowledge of anatomy is essential to the proper understanding of clinical practice. Since a full understanding of any basic science can be obtained only by direct observation, the anatomy department emphasizes laboratory instruction in its gross microscopic and neurologic anatomy courses. By integrating the theoretical lectures with the practical laboratory assignments, the development provides the students with a comprehensive and meaningful treatment of the subject.

Research Interests

The faculty of the Department of Anatomy are actively engaged in research on several fundamental aspects of cell biology. Projects on spinal cord regeneration, neuronal transplantation, innervation of cerebral blood vessels, and circulation of the cerebrospinal fluid are representative of departmental interests in neurobiology. Studies of muscle biology focus upon atrophy, hypertrophy, growth, regeneration and trophic influences of nerves on skeletal muscle. An extensive research program on reproductive biology is focused on the regulation of ovarian function.

Undergraduate Medical Program

First Year

MANA 511. Anatomy of the Human Body. A comprehensive understanding of the morphology of the human body is provided. The basic concepts of structure as related to function are described in lectures and demonstrations. Laboratory facilities are provided for dissection of the human body and for the study of osteology and prosected material. The course includes instruction in living anatomy, roentgen anatomy and clinical correlation. (Dr. Rees and Staff)

MANA 512. Histology and Cell Biology. Students will acquire a basic knowledge and understanding of the light microscopic structure of the human body and its fine structure as seen with the electron microscope. The interdependence between structure and function in the different tissues and organs of the body is emphasized. Clinical and research applications of the course material are also stressed. Histological slides are provided for laboratory study and special lectures are given on functional ultrastructure. (Dr. Guth and Staff)

MANA 513. Neurological Sciences. This course provides an integrated study of neuroanatomy, neurophysiology, neurochemistry and clinical neurochemistry. The structure and function of the central nervous system are presented simultaneously. Facilities are provided for dissection of the human brain, examination of stained microscopic sections of various levels of the brain stem, and laboratory experience involving the study of functional aspects of the nervous system. (Dr. Rennels and Staff)

MANA 514. Human Embryology. This series of one-hour lectures surveys the fundamentals of development of the various organ systems from conception to birth. (Dr. Hirshfield and Staff)

Electives

Special electives are available to clinical and preclinical students. Some are listed in the Graduate School and medical school elective catalogs, and others can be offered by direct arrangement between student and faculty.

ANESTHESIOLOGY

Acting Chairman
M. Jane Matjasko, MD
Professor Emeritus
Martin Helrich, MD
Adjunct Professor
William H. Dornette, MD
Associate Professors
Brian H. Hoff, MD
Colin F. Mackenzie, MD, ChB
M. Jane Matjasko, MD
Baekhyo Shin, MD
Assistant Professors
Michael N. Ashman, MD
Zanaida Bengson, MD
Susan M. Cohen, MD
Romeo S. del Rosario, MD
Jawad V. Hasnain, MD
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Clinical Assistant Professors
Charles Hobelmann, Jr., MD
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Melvin L. Keller, MD
George Kushner, Jr., MD
Stephen O. Laucks, MD
Merrill E. Parelhoff, MD
James R. Smolko, MD
Visiting Assistant Professors
William J. Brampton, MD
W. Jeremy Rickford, MB
Robert J.N. Watson, MB
Instructors
Toa Chaw, MD
Kevin B. Gerold, DO
Douglas G. Martz, MD
Frank D. McCormack, MD
Bettylou K. Mokriski, MD
Sheryl E. Nagle, MD
Ronald N.Sakamoto, MD
Gary J. Waxman, MD
Clinical Instructors
Karim Rashad, MD
Sukhwant Sidhu, MD

As part of the sophomore course given by the Department of Pharmacology and Experimental Therapeutics, a discussion group elective "Clinical Practice in Anesthesiology" is offered to present the core curriculum of the specialty. The course is highlighted by "hands on" laboratory animal demonstrations in the Anesthesiology Research Laboratories.

In addition, during the first two years the department participates in lectures, conferences and laboratory exercises of various preclinical departments. Such participation is intended to illustrate the application of basic science principles to the clinical practice of anesthesiology. Emphasis is placed on the physiologic and pharmacologic basis for the management of patients before, during and after surgery.

Electives of varying orientation and complexity are provided during the clinical years. These include clinical anesthesiology, neuroanesthesia and critical care medicine. Further information and details concerning the elective courses may be found in the electives catalog or by contacting the department chairman.

Research Interests

Research is related to cardiorespiratory function and computer models. Studies under way include the effects of air embolism on expired N_2 analysis during bolus and infusion VAE and the effects of CPR on large bolus VAE analyzed with the gamma camera and radioisotopes. High frequency ventilation and continuous flow ventilation techniques are under study to determine the differences between high frequency oscillation and the flow interrupter in comparison to conventional mechanical ventilation. Continuous flow ventilation including apneic oxygenation, endobronchial insufflation and tracheal insufflation of oxygen are also compared to conventional ventilation. The differences in washout of radioisotopes from occluded segments of lung during high-frequency and continuous flow ventilation are compared to washout with conventional ventilation. In addition, the effects of high frequency ventilation on liver blood flow have been determined.

Other studies are examining Xenon uptake and distribution and development of a Xenon carrier. The Xenon studies in general are used to examine gas exchange mechanisms related to

cardiac activity and flow through collateral airways during these novel forms of ventilation.

Computer analysis and modeling include networking of instrumentation in the laboratory to provide on-line data acquisition; development of an anesthesia simulator and a teaching model for management of mechanical ventilation.

Seven faculty members and two resident anesthesiologists are actively participating in laboratory studies. Up to three medical students can be accommodated during the summer with experience provided in instrumentation and anesthesia for laboratory animals utilizing many of the interventions and measurements of cardiorespiratory function used in clinical practice. The students would join ongoing research projects and assist with data collation and analysis.

BIOLOGICAL CHEMISTRY

Professor and Chairman
Giuseppe Inesi, MD

Professors
Lindsay W. Black, PhD
Enrico Bucci, MD, PhD
Leonard H. Frank, PhD
Joseph R. Lakowicz, PhD
Stephen R. Max, PhD
Burton M. Pogell, PhD
Seymour H. Pomerantz, PhD
Adil E. Shamoo, PhD
J. Tyson Tildon, PhD

Research Professors
Mary E. Kirtley, PhD
Martin F. Schneider, PhD

Associate Professors
Donald L. Gill, PhD
James B. Kaper, PhD
Terrence B. Rogers, PhD

Research Associate Professors
Clara F. Bucci, PhD
Peter I. Gutierrez, PhD

Assistant Professors
A-Lien L. Chang, PhD
Paul B. Wolfe, PhD

Research Assistant Professors
James E. Bishop, PhD
Danuta Kosk-Kosicka, PhD
Harry L.T. Mobley, PhD
Bruce J. Simon, PhD
Arthur L. Zachary, PhD

Research Associates
Ira Allen, PhD
Diana Bigelow, PhD
Thomas Bzdega, PhD
Ayse Dosemesi, PhD
Preeti A. Gangola, PhD
Tarun Ghosh, PhD
Ignacy Gryzynski, PhD
Ananda Jayaweera, PhD
Nanda Joshi, PhD
Michael Klein, PhD
Anita Lynn, PhD
Henryk Malak, PhD
Maria-Christina Martorana, PhD
Jose Puche, PhD
Venigalla Rao, PhD
Michael San Francisco, PhD
Thomas Squier, PhD
Carlotta Sumbilla, PhD
Henryk Szmacinski, PhD
Louis Tisa, PhD
Wieslaw Wiczk, PhD

Biochemistry seeks to understand the phenomena of biology in terms of molecular structure and interaction. It permeates all of biology and medicine and is a fundamental prerequisite to other medical sciences, particularly pharmacology, microbiology and pathology; and the clinical sciences.

It is a teaching goal of the department to present a concise but comprehensive lecture-conference course including as major subjects: proteins, enzymes, nucleic acids, intermediary metabolism of major food stuffs, energy production and utilization, chemical aspects of hormones, protein and nucleic acid biosynthesis and biochemical genetics. In addition, the introductory medical course includes a systematic series of sessions organized with the Department of Medicine which demonstrates the application of biochemistry to the understanding of human metabolic disorders.

Because some entering students have had a reasonably thorough exposure to biochemistry, the department offers a place-out examination during the first week of the freshman year.

In connection with the elective program embodied in the revised curriculum, a number of special seminar-conference topics are offered in both the January and June elective periods. Details and descriptions of course offerings can be found in the electives catalog. Additionally, students with special interests in biochemical investigation are encouraged to ask faculty members about opportunities for part-time or summer research. Limited funds have been available to support part-time research assistants from the medical classes.

The department also offers a doctoral program and a series of advanced courses (see Graduate School catalog).

Research Interests

Research interests within the Department of Biochemistry are numerous and include studies in metabolism and enzymology (both mammalian and microbial), transport and membrane biochemistry, enzymology and fluorescence spectroscopy. Other research interests within the department focus upon collagen structure and metabolism, hemoglobin biochemistry, genetics and morphogenesis of viruses, regulation and synthesis of glycoproteins, and metabolism of nucleic acids.

Undergraduate Medical Program

First Year

MBIC 600. Biochemistry. An introduction to the later preclinical and clinical subjects. This course, presented in the first semester, is oriented toward mammalian metabolism and enzymology and those aspects of general biochemistry common to all organisms. A separate but closely related course, correlative medicine, brings clinical correlation to the biochemical material in a series of weekly presentations of scientific clinical lectures, sometimes centering around a patient. (Staff)

Fourth Year

MBIC 548. Research Elective. Students are offered the opportunity to work with various faculty members in the following areas: 1) mechanism of ion transport; 2) hormonal regulations of receptor function; 3) calcium regulation in the cardiovascular system; 4) brain receptors; 5) membrane structure and function in mammalian and microbial systems; 6) membrane glycoprotein and phospholipid biosynthesis; 7) amino acid metabolism, collagen structure and metabolism, and amino acid racemases and epimerases; 8) biochemistry and genetics of virus development and assembly, as well as regulation of development; 9) physical-chemistry and chemistry of proteins; 10) microbial metabolism and physiology, as well as membrane transport of amino acids; 11) regulation of enzyme action by allosteric interactions and 12) fluorescence spectroscopy. (Staff)

BIOPHYSICS

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Professors
Lawrence Goldman, PhD
Hugo Gonzalez-Serratos, MD, PhD
Raymond A. Sjodin, PhD
Adjunct Professor
F.J. Brinley, Jr., MD, PhD
Associate Professor
Albert Hybl, PhD
Assistant Professor
Donald R. Matteson, PhD
Research Associate
Joseph G. Montes, PhD

The Department of Biophysics strives to provide medical students with a background in membrane transport, electrical excitability of nerve and muscle, muscle contraction and the physicochemical principles necessary for the understanding of physiology and the neurosciences. The department also offers a program of graduate study leading to the PhD degree. Study programs are flexible and depend upon the preparation and interest of the student. Arrangements for a combined MD/PhD program are available on an individual basis.

Information regarding requirements, graduate courses offered, and research interests of the staff are available from the department, 660 West Redwood Street, Baltimore, Maryland 21201. Deadline for graduate applications is March 1.

Undergraduate Medical Program

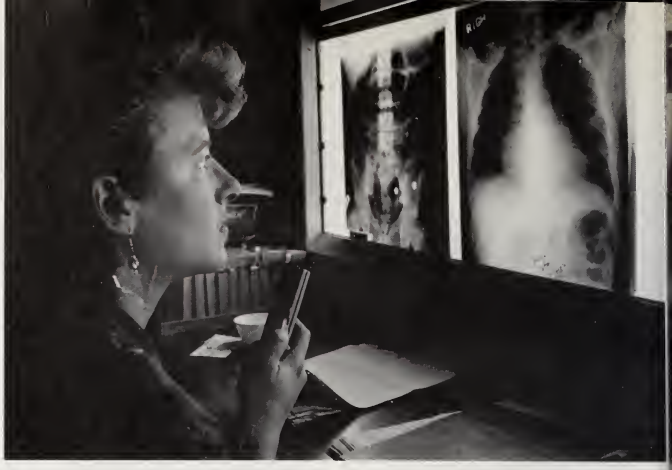
First Year

MBPH 510. Principles of Biophysics. Given in cooperation with the Department of Physiology, this course is required of medical students. It is comprised of an introduction to cell physiology with special emphasis on osmotic and electrolyte balance in cells, the processes underlying the generation of the membrane potential, the mechanisms involved in electrical excitation of nerve, the transfer of excitation across synapses, and the mechanism of muscle contraction. (Staff)

Electives Open to First, Second and Fourth Year Students

MBPH 511. Topics in Membrane Biophysics Elective. This course covers the following: 1) fundamentals of membrane permeability and transport; 2) enzymatic basis for active transport; 3) nerve excitation and conduction (cable properties and biophysical analysis); 4) muscle contraction and excitation-contraction coupling; and 5) selected topics of possible clinical significance. (Dr. Sjodin, Dr. Gonzalez)

MBPH 512. The Application of Computers to Medicine Elective. Students are introduced to the uses of computers in the biosciences and medicine. Each student will have an opportunity to acquire experience using a terminal to interact with a computer. An introduction to the techniques needed to undertake digital simulation of physiological processes, statistical analysis, plotting and FORTRAN programming will be presented. (Dr. Hybl)



DIAGNOSTIC RADIOLOGY

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Nancy O. Whitley, MD

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Lyle T. Saylor, MD
Michael L. Sherman, MD
George Silverton, MD
Larry A. Snyder, MD
Nathan Stofberg, MD
William N. Thomas, MD
William H. Wallop, MD

Instructors
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Randall Brodsky, MD
Lynn Harris-McCorkle, MD
Noureddin Nourmohammadi, MD
Andrea Rothe, MD
Frederick Williams, MD

Adjunct Instructors
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Bruce P. Berlanstein, MD
Douglas R. Brunner, MD
Brad M. Cogan, MD
Jack A. Copeland, MD
J. Stephen Cunat, MD
Kris Gunadi, MD
Gregopry Marrocco, MD
John D. Reeder, MD
Frank G. Twardzik, MD
Allan P. Weksberg, MD

Since German physicist Wilhelm Conrad Roentgen discovered the x-ray in 1895, its use has been greatly expanded in our society. With the advances in technique, including computed tomography, radiology now makes or verifies the diagnosis in three out of four cases of organic disease. With the advent of nuclear medicine, ultrasonography and magnetic resonance imaging (MRI), diagnostic imaging is playing an even more extended role in diagnosis and selected therapeutic procedures.

Research Interests

Basic science research in the Department of Diagnostic Radiology focuses upon digital radiography and fluoroscopy sensor development. Departmental researchers are building a high-resolution, scanning solid state x-ray detector for digital radiographic studies, particularly mammography. There is also an active project evaluating pulsed, low frame rate fluoroscopy for patient exposure reduction. The department is also working in cooperation with x-ray equipment manufacturers to improve current digital subtraction angiography (DSA) systems. A new area of research being developed is the application of computer vision techniques to radiography imaging. This effort, in collaboration with the internationally renowned Computer Vision Laboratory at UMCP, will seek to develop quantitative measures to assist the radiologist in evaluating the presence, extent and severity of disease. An active project in abdominal ultrasound is now in its early stages.

Clinical research in this department focuses upon two long-term projects. Together with physicians in Gynecologic Oncology and the University of Maryland Cancer Center, the department is working to establish the accuracy and limits of computed tomography and MRI in staging gynecologic malignancies and lymphoma. Another project, involving MIEMSS physicians, is an investigation of the usefulness of CT and MRI in the diagnosis of multiple visceral trauma and their complications.

Undergraduate Medical Program

The Department of Diagnostic Radiology offers the medical student an opportunity to acquire a broad base of knowledge touching on almost all aspects of medicine. The required curriculum begins with radiologic anatomy taught as a part of Gross Anatomy (MANA 511) in the first year. This portion of the curriculum consists of lecture demonstrations and a slide-tape series, "Introduction to Radiographic Anatomy." Formal instruction is continued in the third year with the course RADI 540. The required curriculum is supplemented with informal case discussions with the staff and contact through interdepartmental rounds and conferences involving Diagnostic Radiology while the student is on other clinical rotations at the University of Maryland Medical System/Hospital.

Third Year

RADI 540. Basic Radiology. Groups of students are assigned for a period of three weeks to the Department of Diagnostic Radiology. The group is subdivided to allow individual instruction as the student rotates through brief observation periods in selected subspecialties within the department. Students also receive an introduction to the Department of Radiation Oncology. Reading assignments, small group slide-tape exercises, a student teaching file and lectures form the core of the learning experience. Students attend departmental conferences and some of the joint conferences with other departments. An objective final examination is included in the course. (Dr. J. Whitley)

Third and Fourth Year

Diagnostic Radiology Elective. Students learn more about properly using diagnostic imaging and interpreting images. The precise curriculum is flexible, tailored to the needs of the student's career choice. Students are expected to investigate some small aspect of imaging within their area of interest and make a 20-minute presentation to the faculty and residents. This presentation and overall performance, as evaluated by the curriculum supervisor, serve as the evaluation criteria for this elective. RADI 540 is a prerequisite. (Dr. J. Whitley)

Graduate Program

A four-year residency is offered in diagnostic radiology at the University of Maryland Medical System/Hospital. Fellowships are offered in computed body tomography/ultrasonography/MRI, interventional and vascular radiology and neuroradiology and nuclear radiology.

EPIDEMIOLOGY AND PREVENTIVE MEDICINE

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- Charlotte Ferencz, MD, MPH
- J. Richard Hebel, PhD
- James I. Hudson, MD
- Christian R. Klimt, MD, DrPH
- Leonard Scherlis, MD
- Mary M. Sexton, PhD, MPH
- Roger W. Sherwin, MB, BChir
- G. Thomas Strickland, MD, PhD, DCMT
- Marjorie P. Wilson, MD

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- Myron M. Levine, MD, DTPH
- P. David Wilson, PhD

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- Thomas J. Kulle, PhD
- Brigita Krompholz, MD, MPH
- Jay Magaziner, PhD, MS Hyg.
- Robert J. McCarter, ScD
- John G. Morris, MD
- Suzanne T. Orr, PhD
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- Bruce W. Thompson, PhD
- Dorothy A. Snow, MD, MPH
- Robin A. Whitlock, MDiv

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Research Assistant Professors
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- Patricia C. Dischinger, PhD
- Kiyohiko Mabuchi, MD, DrPh
- Mark A. Moody, PhD
- Elaine Romberg, PhD
- Michael L. Terrin, MD

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- Paul East, MB, BS, MPH, LLM
- Katherine P. Farrell, MD, MPH
- Eric Fine, MD, MPH
- David Glasser, MD, MPH
- Williard L. Graves, PhD
- Leon Kassel, MD
- Suzanne S. Murphy, MSA
- John L. Pitts, MD, MPH
- Ann E. Pulver, ScD
- Peter Warschawski, PhD

Instructors
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Belavadi S. Shankar, ScD

Research Associates
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Barbara R. Cornman, MSW
Quely de Barros, MS
Elizabeth DuVerlie, MHS, MA
James F. Gardner, ScM
Louis R. Gephardt, Jr., BS
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Barbara C. Schumann, MA
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Eleanor M. Simonsick, PhD
Valerie M. Summerlin, RN, MS
Nittaya Suppapanya, MS

Modern epidemiology is a relatively new biomedical discipline at the interface of clinical practice and basic medical science. The clinical arena within which epidemiologists work is termed preventive medicine. The practice of epidemiology and preventive medicine requires a comprehensive knowledge of clinical medicine and basic medical science, as well as of experimental methodology, biostatistics and the social sciences.

The department is engaged in teaching, research and service across the spectrum of public health and preventive medicine. Programs in gerontology, medical informatics, environmental and occupational health, chronic and infectious disease epidemiology, biostatistics, health services administration and evaluation, maternal and child health and behavioral science are offered. Faculty members also conduct research and offer courses, seminars, journal clubs, clinical assignments and supervised research experiences designed to enhance the physician's capabilities in these areas of increasing public concern.

The Division of Gerontology is a leading academic unit devoted to research, teaching and service programs in geriatrics and gerontology. Evaluation of hospital-based, ambulatory and national health care issues and academic programs relating thereto are the responsibility of the Division of Health Care Policy and Administration. The newly established Division of Medical Informatics, staffed by faculty from the Medical School and internationally acclaimed computer scientists from the College Park campus, is responsible for the computer literacy of medical students, graduate courses in information science and computer-based research projects. The Health Data Management Center, the service arm of the Division of Medical Informatics, offers a wide range of research, project development and data management services to faculty and students at UMAB and beyond. Interdisciplinary programs with the Division of Geographic Medicine, the International Health Program and the University of Maryland Cancer Center are additional resources available to qualified students. Other facilities include: the Survey Research & Development Center, a university-based resource for the design, conduct and analysis of all types of mailed, telephoned, personal and community surveys; the Maryland Cancer Registry, a computerized state-wide system for registering data on cancer patients, developed and operated for the Department of Health and Mental Hygiene; and UniHealth, a health promotion and risk appraisal resource, designed to serve hospitals, industry, private physicians and population groups with an array of computerized assessment, intervention and health behavior modification programs.

Required courses in biostatistics, epidemiology, occupational health, organizational aspects of medicine and clinical preventive medicine are offered in the first, second and fourth years of the curriculum. A variety of graduate courses, tutorials and research experiences are available to medical students during their elective periods. Students also are invited to attend departmental seminars, resident seminars and journal clubs which are scheduled each week throughout the academic year. Summer fellowships, in which students engage in epidemiologic projects under faculty supervision and participate in departmental seminars and workshops, are available on a competitive basis.

An approved two- or three-year residency leading to certification in general preventive medicine is offered to clinically qualified applicants. The program is designed to satisfy a wide variety of career aspirations for positions in federal health agencies, state health departments, hospitals, medical schools, public health institutes, industry and private practice of clinical preventive medicine.

The community service activities of the department are carried out through active collaboration in health planning, research and evaluation with agencies and institutions concerned with health problems throughout the region. These include hospitals, clinics, health departments, and a variety of other federal and voluntary organizations.

Research Interests

Research activities within the department encompass a broad range of interests. Cardiovascular disease, particularly coronary heart disease and hypertension, is a major focus of attention. Cancer investigations include studies on the etiology of specific neoplasms, analysis of time trends, and development of computerized clinical information management systems. Environmental risk factors in congenital heart disease and other birth defects are an important area of departmental research. The epidemiology of diabetes mellitus and relationships between maternal diabetes mellitus and adverse health outcomes in the offspring are also being studied. A variety of research projects in gerontology, occupational health, drug abuse, hip fractures, nursing home utilization, smoking in pregnancy and the elderly living alone are under way.

Hospital and health services are subjects of increasing interest to departmental faculty, with studies on patterns of utilization at University Hospital and other metropolitan Baltimore institutions recently completed. Health behavior modification is another area of departmental activity, with new findings on the effect of smoking during pregnancy on the offspring recently published. UniHealth, the department's health promotion program, has developed computerized health risk appraisal instruments as well as specific health behavior modification regimens for use by industry and the general public.

Changing patterns in medical education, improving the quality of care for mothers with dependent children, tropical and infectious diseases and preventive cardiology are other areas of research interest to the department.

Undergraduate Medical Program

First Year

PREV 520. Biostatistics for the Physician. Second Semester. This course is designed to enable the student to evaluate clinical and research findings published in the medical literature. Topics include: probability, probability distributions, descriptive statistics, sampling, significance testing and correlation. Small group sessions with emphasis on problem solving. (Dr. Hebel and Staff)

*Second Year**

PREV 500. Epidemiology for the Physician. Second Semester. The distribution patterns, natural history, risk factors, and methods for control of selected diseases of public health importance are presented. Topics include a variety of chronic, infectious and genetically inherited diseases. Small group sessions. (Dr. Sherwin and Staff)

PREV 540. Organizational Aspects of the Health Care System. Second Semester. A short course emphasizing the use of epidemiologic methods in analyzing relationships between social and organizational factors and health status. Structural components of the health care system, alternative modes of health care delivery, utilization of health care services and referral patterns are discussed. Small group sessions. (Dr. Hudson and Staff)

PREV 560. Occupational and Environmental Medicine. Second Semester. A short course offering an introduction to disease in the occupational and environmental setting, including techniques for taking occupational histories. Small group sessions. (Dr. Keogh and Staff)

* A single grade is awarded for PREV 500, 540 and 560.

Fourth Year

PREV 544. Preventive Medicine in Clinical Practice. A course offered to all senior medical students, dealing with applications of preventive medicine in the clinical practice setting. Significant causes of morbidity and mortality during each of the life epochs from prenatal through old age are discussed. Emphasis is upon the role of the practitioner in primary and secondary prevention of disease. Other sessions are devoted to health promotion, occupational health, economic issues, medicolegal problems and medical ethics. Small group sessions. (Drs. Rubin and Sherwin)

Electives

A variety of elective opportunities are available for medical students. These include tutorials with selected faculty members, supervised research experiences and courses which are offered longitudinally throughout the year or during the minimesters. Among currently offered courses are the following: PREV 503 Birth Defects (Dr. Ferencz); PREV 525 Medical Biostatistics: Assessing Information (Dr. Hebel); PREV 526 Introduction to Computing (Dr. McCarter); PREV 543 Economics of Health Care (Dr. Sorkin); PREV 571 Parent/Child/Physician Interaction (Dr. Sexton).

Fellowships and Honors Programs

Summer fellowships and honors programs in preventive medicine are available to a limited number of students. Working closely with a faculty member, each undertakes a research project in gerontology, occupational medicine, health behavior modification, health services evaluation, biostatistics, computer applications to biodata or some other aspect of preventive medicine, public health or epidemiology. Fellows also participate in departmental seminars, journal clubs and workshops which enhance opportunities for interaction with faculty members, preventive medicine residents and other students. Elective credit is given to those satisfying the requirements of the program.

The Robley Dunglison Prize for excellence in Preventive Medicine is presented at precommencement to an outstanding senior student.

Graduate and Postgraduate Studies

The Department of Epidemiology and Preventive Medicine offers a two- or three-year residency program in general preventive medicine which is approved by the American Board of Preventive Medicine. This provides a variety of opportunities for advanced study and practice in epidemiology, biostatistics, computer science, health care administration, gerontology and occupational health.

Components of the residency program include required and elective graduate-level courses, a variety of seminars, journal clubs and workshops, supervised research experiences and field placement in public health or research settings.

Combined residency programs may be arranged for qualified applicants in cooperation with the departments of internal medicine, pediatrics, family medicine and other clinical departments. These qualify the resident for board-eligibility in both preventive medicine and the clinical specialty.

The department's Graduate Program in Preventive Medicine, offers MS and PhD degrees. A conjoint program leading to the award of both MD and MS in preventive medicine degrees at the end of four or five years of study is also available to medical students. The fifth year qualifies as a year of residency credit approved by the American Board of Preventive Medicine.

FAMILY MEDICINE

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C. Earl Hill, MD
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Howard M. Klein, MD
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Christine Marino, MD
Anthony Vazzano, MD
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Instructors
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William Lamm, MD
Paul D. Miller, DO
Walter Naumann, MD
Charles H. Rosenfarb, MD
Karl E. Schwalm, MD
George B. Stoltzfus, MD
Adjunct Professor
Daniel Leviton, PhD

The Department of Family Medicine educates family physicians to be capable of rendering high-quality medical care to individual patients and families in a continuous and comprehensive manner. The family physician has responsibility for patient care at the point of entry into the health care system; acts as provider or coordinator of health care at the secondary and long-term care phases of illness; and coordinates tertiary care.

The department offers educational experiences in family medicine for students in the Family Health Center, on the inpatient service, and through an interdisciplinary longitudinal educational program which is guided by a full-time staff of experienced family physicians. Moreover, students are afforded the opportunity to participate in community health services and supervised practice experiences, and to engage in basic health care research.

Within the scope of family medicine activities, several areas are emphasized. The department has a Division of Geriatrics and is a national leader in geriatric education. It was the first (1974) specifically dedicated Division of Geriatrics on this campus. Multiple programs, both departmental and interdisciplinary, are in place or being formulated. The Robert Wood Johnson Foundation has awarded this program a long-term grant for the development of an innovative health care system for the elderly. The broad spectrum of the division's educational, research and patient care efforts includes the pre-elderly well and the chronically incapacitated aged patient. Expansion of facilities to accomplish the above are in progress. Faculty development is a major departmental effort as well. Courses and workshops in teaching skills are offered to postdoctoral and predoctoral students. Fellowships in geriatric medicine are offered to residency graduates who wish to further develop their skills in the care of geriatric patients.

Research Interests

The research efforts of the Department of Family Medicine reflect the broad interests of the department's faculty. Current projects, which are clinically oriented and relate to current medical problems, range from epidemiologic studies to evaluations of specific therapies. The department has a strong interest in nutrition, especially as it relates to the family and the elderly. It has interest as well in health promotion and collaborates with other departments to investigate methods of health promotion. Other collaborative efforts involve infections in the elderly, abdominal pain, informed consent, and osteoarthritis. During their last year of training all Family Medicine residents are required to complete a research project and present their results at the Annual Family Medicine Residents' Research Day. The department faculty, fellows and residents present their research at national meetings, and through publications.

Undergraduate Medical Program

Longitudinal Elective. Introduced into the curriculum in 1976, this elective permits the student interested in family medicine to decide on and gain knowledge toward that career objective. Included in this offering are interesting field trips, seminars, panel discussions and preceptorship experiences. Topics include historical medical perspectives; the economics of medicine; the humane approach to patient care; interrelationships among patient, family, community and physician medical profession, to name a few. (Dr. Rixey)

Minimester Electives. During the months of January (not available to freshman students in January) and June. Students may elect to spend time in the office of a selected family physician in order to gain knowledge of the health care system at that level. In this setting, the student may opt for patient care participation and/or engage in some health care research in that ambulatory population. (Dr. Guyther)

The Family Care Track Program

The Family Care Track (FCT) Program is a four-year elective sponsored by the Department of Family Medicine. This course is designed to provide students with an opportunity to participate in direct patient care throughout their four years of medical education. The focus of the curriculum is on the family physician's role in the care of the urban poor, and will attempt to enrich each student's knowledge and skills in dealing with an urban population.

Up to 20 students each year will be selected from the freshman Longitudinal Elective in Family Medicine to participate in the Family Care Track Program. In addition to participating in the didactic and practicum experiences in the freshman and sophomore electives, students will be assigned to work with patients and their families in the Family Health Center under the direct supervision of a family physician. During their freshman minimester preceptorship students also will have the opportunity to spend four weeks in the office of an urban family physician and to complete a community project addressing an area of health need by graduation. Students also will be exposed to

small group integration seminars and computer assisted programmed learning which will be directed at integrating their clinical experiences within the context of family and community.

Credits for this elective include: 1) one basic science and one non-basic science credit for each year of the longitudinal elective; 2) four weeks of senior elective credit at the completion of the program; and 3) introduction to clinical practice credit.

Senior Elective in Family Practice. In this elective students work with a community family physician preceptor. Under supervision they have the opportunity to manage problems typical of a busy practice ranging from obstetrics to geriatrics. Here there is ample opportunity to be involved in coordinating continuous care for four to six weeks. Students begin to understand the patient in relationship to his family, his job, and his environment. Furthermore, the student observes the role of the physician in society, his social and civic obligations and responsibilities to the patient. Site options range from Urban Health Manpower shortage sites to rural private practice. In these varied settings students are expected to carry out a small clinical investigation, using data collected in the practice, and to attend weekly Alcoholics Anonymous or Al-A-Non meetings in the community.

Senior Internship in Family Practice. The Department of Family Medicine offers an eight-week internship to senior students. This is an intensive inpatient experience utilizing the Family Medicine Inpatient Service. Variety is a major attraction as the patients' needs range from newborn care and obstetrics to adult general medical care. The student is exposed to the family practice approach to inpatient care with an emphasis on interdisciplinary, comprehensive and continuous care. The students participate in night and weekend call. (Dr. Poulsen)

Senior Ambulatory Clerkship in Family Practice. As an additional option in the required Senior Ambulatory Course, students may select the Family Health Center. This eight-week rotation exposes students to the clinical practice of the University of Maryland Department of Family Medicine Residency Program. In this setting students are scheduled to see patients daily in the Family Health Center, work with a variety of preceptors from the Department of Family Medicine, and participate in didactic sessions. This ambulatory experience is designed to expose students to the principles and practice of Family Medicine.

Graduate Medical Program

The University of Maryland's approved three-year residency in family practice is one of the oldest in the nation. Approximately 30 residents are enrolled in a three-year program whose goal is to provide comprehensive training in the specialty utilizing the latest information and educational methods. The educational requirements of the Residency Review Committee in Family Practice of the Accreditation Council for Graduate Medical Education are closely adhered to. Additionally, every effort is made to see that the curriculum and educational experiences are in accordance with the Residency Assistance Program's Criteria for Excellence in Training. Flexibility, however is maintained through the availability of electives in order to accommodate the specific needs of the trainee. Although the majority of graduates are actively engaged in family practice, a significant number are pursuing an academic career. (Dr. Hill)

Continuing Education Programs

This phase of the Maryland program is based on the philosophy that the education of the family physician must be a continuum throughout the entire career. These programs help to prepare family physicians from throughout Maryland to successfully pass each recertification examination as required by the American Board of Family Practice.

A variety of continuing education programs is offered, ranging from short didactic courses to extensive in-depth courses in system-oriented clinical subjects. Also offered are individually tailored courses designed to fulfill specific needs of a physician. Information on current and projected courses is available at all times from the Department of Family Medicine or the Program of Continuing Medical Education. (Drs. Claudy and Rixey)

INTERNAL MEDICINE

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Ephraim T. Lisansky, MD
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(Chairman, 1954-1981)
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Professors
Edson X. Albuquerque, MD, PhD
Mordecai P. Blaustein, MD
Gerald S. Johnston, MD
Morton I. Rapoport, MD
Clinical Professor
Jay S. Goodman, MD

Associate Professors
Mark M. Applefeld, MD
John S. Britten, MD
Edward U. Buddemeyer, MD
Felix P. Heald, MD
Elizabeth L. Rogers, MD
Clinical Associate Professors
Paul D. Chang, MD
Ronald W. Geckler, MD
Thomas E. Hobbins, MD
Victor R. Hrehorovich, MD
John H. Mulholland, MD
Robert T. Parker, MD
Julian W. Reed, MD
Charles Whitfield, MD
Michael C.W. Yen, MD
Assistant Professors
Robert A. Barish, MD
Howard Belzberg, MD
Brian J. Browne, MD
Elizabeth Tso, MD
Clinical Assistant Professors
Aristides C. Alevizatos, MD
Wayne S. Barry, MD
Stuart B. Bell, MD
Pablo E. Dibos, MD
Salvatore Donohue, MD
Davis M. Hahn, MD
Robert G. Hartley, MD
Colen C. Heinritz, MD
Christine Holland, MD
Stuart Jacobs, MD
Sandra E.C.O. Johnson, MD
Martin Y. Magram, MD
T. Joseph Mardelli, MD
Robert D. Mathieson, MD
Lawrence Mills, MD
Joseph D. Notarengelo, MD
Samuel I. O'Mansky, MD
William E. Randall, Jr., MD
Gary Ruppert, MD
John Salkeld, MD
Mahin Shamszad, MD
Robert L. Smith, MD
L. William Thomas, MD
Dean L. Vassar, MD
M. William Voss, MD
Randolph G. Whipps, MD
Celeste L. Woodward, MD
Benjamin K. Yorkoff, MD

Instructors
Robert Ammlung, MD
Perry G. Austin, MD
Richard D. Biggs, MD
Charles H. Chodroff, MD
William A. Dear, MD
Susan A. Dumsha, MD
David A. Goldscher, MD
Georginia A. Groleau, MD
Peitr Hitzig, MD
Charles F. Hoesch, MD
Michael A. Hyle, MD
Miguel Karacuschansky, MD
Bernard S. Karpers, Jr., MD
Robert T. Liberto, MD
Sandra T. Marshall, MD
Judah A. Minkove, MD
Bruce E. Rosenberg, MD
Edward W. Schaefer, MD
Martin J. Sheridan, MD
Allan J. Solomon, MD
Ralph E. Updike, MD
Ralph Weber, MD
DePriest W. Whye, MD
Daniel J. Winn, MD
Clinical Associates
Nicholas B. Argento, MD
Begonia Aristimuno, MD
Patrice M. Becker, MD
Russell D. Brown, MD
Hung K. Cheung, MD
David A. Flick, MD, PhD
Christine L. Helinski, MD
Brian J. Kahn, MD
Ruth E. Kantor, MD
Kevin L. Kovitz, MD
Sharon J. McCormack, MD
Victoria A. Mossman, MD
David F. Moulton, MD
Kevin J. O'Keefe, MD
Albert J. Romanosky, MD, PhD
Dorothy E. Scott, MD
William J.P. Still, MD
Adriana Uribe, MD
Vivek Varma, MD

The Department of Medicine, or Internal Medicine as it is called in some schools, teaches that body of medical knowledge which enables one to diagnose and treat the illnesses of adults primarily with medicines rather than with operations.

The practitioner of internal medicine is usually called an internist, but he or she may be referred to by the title physician, in the specialized use of the word which can also be applied to any medical doctor. A physician, used in this sense, may be a cardiologist, an endocrinologist, a gastroenterologist, a rheumatologist, or a practitioner in one of the dozen or so specialties of internal medicine. But the internist always remains the physician (or the diagnostician—as internists were called in past decades) whose special competence is solving difficult diagnostic problems and personally applying, or obtaining from a colleague, the best treatment available at the time.

The term internal medicine, which derives from the German *Innere Medizin,* was first used during the 19th century when many American physicians travelled to Germany and Austria for training in what were then the leading clinics and medical laboratories. According to one medical historian, "Within a decade or so after 1880, internal medicine was differentiated from ordinary clinical medicine, the simple natural history of disease, by emphasizing that it was based on experimental work in physiology and physiochemistry." Internists have always required special training to acquire their knowledge and skills and have continuously shown a particular interest in the scientific basis of clinical work.

Educating medical practitioners for the state and the nation is the principal training responsibility of the faculty of

the University of Maryland's Department of Medicine, but it is also our aim to develop in some students a desire to make useful discoveries through basic or applied research. Fundamental advances in the causes and treatment of disease have often been made by internists for example, the work on cholesterol metabolism which in 1985 brought the Nobel Prize in Medicine and Physiology to two internists, one a gastroenterologist and the other a geneticist. In keeping with this traditional devotion to the value of research, the Department of Medicine provides many opportunities for students to participate in research and strongly encourages all who may have an interest to experience the work of the investigator in one of our laboratories.

Undergraduate Courses

Second Year

PDIA 520. History and Physical Examination. Eliciting an accurate story of the patient's complaints, the history and detecting abnormal findings by physical examination constitute the fundamental skills of every physician. To acquire these abilities, students attend introductory lectures from members of the faculty; afterwards, groups of two students meet weekly with instructors in one of the University of Maryland's teaching hospitals. The students interview and examine patients with a wide variety of illnesses, and then discuss the findings with their teacher who correlates the observations with pathophysiological abnormalities being studied in basic science courses.

Third Year

MEDC 530. Clinical Clerkship. This is the fundamental course in internal medicine for medical students. For 12 weeks, the students work with the medical teams caring for inpatients at the department's two primary teaching hospitals, the University of Maryland Hospital and the Baltimore Veterans Administration Medical Center. Students join the interns, residents, and nurses for work rounds at 8:00 a.m. and participate in the daily conference with their attending physician from the faculty at 9:00 a.m. On Monday through Friday at 11:00 a.m. clinical clerks attend a student lecture delivered by members of the faculty designed to teach the most important subjects in internal medicine during the 12-week course. At noon on Wednesdays and Fridays, students join the house officers and faculty at Medical Grand Rounds and the Morbidity and Mortality Conference. During the afternoons and evenings, clerks examine patients and evaluate laboratory data to develop diagnosis and treatment programs with the house officers and faculty.

At the University of Maryland Hospital, third-year students meet twice each week with their clinical preceptors, faculty members chosen especially for the instruction of medical students. At these seminars, students present cases for advanced instruction in the pathophysiology and diagnosis of disease.

Fourth Year

MEDC 548. Student Internship (Subinternship in Medicine). Each fourth-year student takes a subinternship in medicine, pediatrics, surgery, or family practice. The student internship in internal medicine occupies eight weeks, four of which must be spent on the general medical services at the University of Maryland Hospital or the Baltimore Veterans Administration Medical Center. During the other four weeks, students may work at either of these hospitals or in the University of Maryland Cancer Center, the Coronary Care Unit or the Medical Intensive Care Unit of the University of Maryland Hospital, or at one of the other hospitals affiliated with the University of Maryland. Student interns work as if they were graduate physicians but under the close supervision of the resident and attending physicians. Subinterns are on-call in the hospital with their resident physicians one out of four nights. The amount of responsibility delegated to subinterns depends upon the extent of each student's knowledge, dedication, and maturity. Successful completion of a subinternship in medicine prepares students particularly well for internships in any subject.

Laboratory and Clinical Research Electives. The faculty of the Department of Medicine strongly encourages all students to join them on a full-time or part-time basis to participate in research projects being conducted in the department. This experience may be scheduled at most times of the year. Students with an interest in investigation should talk with members of the faculty or chairman about the many opportunities for this work available in the Department of Medicine.

Graduate Program

House Officer Training. The Department of Medicine appoints each year approximately 30 leading members from the fourth-year class of the University of Maryland and other medical schools to its internship at the University of Maryland Hospital and the Baltimore Veterans Administration Medical Center. About 22 of the interns remain to become junior and senior residents. At the completion of three years of postgraduate training, house officers become eligible for certification as diplomates of the American Board of Internal Medicine. About eight of the interns leave the program after one year for res-

idency training in specialties such as anesthesiology, dermatology, neurology, ophthalmology, and radiology.

Interns and residents care for all the inpatients on the medical services at the University of Maryland's principal teaching hospitals under the guidance of the department's faculty. Throughout their training they also follow the medical progress of a group of patients in the outpatient department.

Continuing Medical Education

The department and its specialty divisions sponsor several courses each year to inform graduate physicians about the most recent developments in the profession. Physicians also are invited to attend the regular clinical and research conferences held by the specialty divisions and the weekly Medical Grand Rounds held on Wednesdays from 12:15 to 1:15 p.m.

CARDIOLOGY DIVISION

Herbert Berger Professor of Medicine and Head
Robert A. Vogel, MD
Professor
Michael L. Fisher, MD
Yu-Chen Lee, MD
Associate Professors
Nathan H. Carliner, MD
Robert W. Peters, MD
Gary D. Plotnick, MD
Robert T. Singleton, MD
Carl L. Tommaso, MD
Clinical Associate Professor
Frederick J. Sutton, MD
Assistant Professors
Rodney A. Johnson, MD
Lisa W. Martin, MD
David A. Meyerson, MD
David S. Roffman, Pharm. D.
J. Lawrence Stafford, MD
Clinical Assistant Professors
Miriam L. Cohen, MD
Donald H. Dembo, MD
Henry J. Meilman, MD
George W. Moran, MD
Marc A. Mugmon, MD
Chris Papadopoulos, MD
Kyle Y. Swisher, MD
Instructors
Mahmood Alikhan, MD
Richard J. Bouchard, MD
Len E. Ennis, MD
Louis E. Grenzer, MD
John F. Marra, MD
G. Robert Medalie, MD
Frank H. Morris, MD
Stephen J. Plantholt, MD
Stephen H. Pollock, MD
Allan S. Pristoop, MD
Barry K. Weckesser, MD
David Zimrin, MD
Clinical Associates
Kevin J. Doyle, MD
Jelles N. Fonda, MD
Mary W. Hawke, MD
Edmund K. Kerut, MD
James J. Kmetzo, MD
Fred M. Krainin, MD
Clara V. Massey, MD
Marc Okun, MD
Gary C. Papuchis, MD
Michael F. Plott, MD
Ronald D. Schechter, MD
Mitchell H. Weiss, MD
Robert Zawodny, MD

Undergraduate Courses

Fourth Year

CARD 541-01. Clinical Cardiology Elective, University of Maryland Hospital. Students participate in patient evaluation and examination under the close supervision of faculty members. Basic concepts of physical examination are stressed and correlated with both noninvasive and invasive techniques. The rotation includes an opportunity for adult and pediatric cardiology training in the clinics, coronary care unit, and graphics laboratory with emphasis on complete patient evaluation, as well as the development of individual areas of interest.

CARD 541-07. Cardiology Elective, Baltimore Veterans Administration Medical Center. Students spend one month participating fully in all activities of the clinical cardiology service. Experiences include medical and surgical consultations, cardiology clinic, daily readings of electrocardiograms and echocardiograms. Special student-oriented conferences on clinical and research topics in cardiology are regularly held.

Postgraduate Fellowships

Selected applicants participate in the activities of the division including responsibilities for cardiac catheterization, electrocardiographic interpretation, vectorcardiographic interpretation, phonocardiology, echocardiography and exercise testing. The fellowships begin July 1 of each year and financial stipends are provided. Application is made through the head of the division and should be completed by November of the preceding year.

DERMATOLOGY DIVISION

Clinical Professor and Head
Joseph W. Burnett, MD
Professor
Colin Wood, MD
Clinical Professors
Eugene S. Bereston, MD
Albert Shapiro, MD
Associate Professors
Gary J. Calton, MD
Andrew G. Smith, MD
Clinical Associate Professors
Bahram Sina, MD
Ronald Goldner, MD
Joan Raskin, MD
M. Eugene Tudino, MD
Irving D. Wolfe, MD
Assistant Professor
Linda L. Lutz-Nagey, MD
Clinical Assistant Professors
Regina H. Anderson, MD
Bruce E. Beacham, MD
Mouta Dilaimy, MD
Seyed Ghotbi, MD
William M. Gould, MD
Jeffrey G. Middleton, MD
Carolyn J. Pass, MD
Charles Samarodin, MD
Emmanuel Silverstein, MD
Ronald J. Sweren, MD
Stanley N. Yaffe, MD
Larry J. Warner, MD
Instructors
Ronald E. Bost, MD
Lawrence Feldman, MD
L. Walter Fix, MD
Kathryn Neuman, MD
Frederick J. Pearson, MD
Mary K. Sopocko, MD
Albert K. Wong, MD
Clinical Associates
Karla D. Gayer, MD
Gary V. Karakashian, MD
Dennis Kurgansky, MD
Charlotte E. Modly, MD
Thuy Vi Nguyen, MD
Wendy R. Parish, MD
Research Associate
David Cargo

Undergraduate Courses
Fourth Year

DERM 530. Introduction to Dermatology. Students are assigned reading on the more common skin eruptions. Eight two-hour sessions are held for each clinical rotation. Individual instruction is given by one of the senior staff members emphasizing the pertinent aspects of differential diagnosis. The relationship of cutaneous lesions to internal disease is stressed.

DERM 541. Dermatology Elective. Dermatology may be taken as an elective during the fourth year. Students will work together with the dermatology residents in the diagnosis and treatment of patients with skin eruptions. They will actively participate in grand rounds, daily seminars, and the weekly journal club. They will also have the privilege of attending the clinical sessions of the Maryland Dermatological Society.

Graduate Program

Instruction is given in dermal pathology, microbiology, pharmacology, venereology, immunology and clinical dermatology. Trainees are required to attend local and regional dermatology society meetings. Attendance also is required at the annual meeting of the American Academy of Dermatology. The division helps to defray the expense of attending this meeting.

Trainees are encouraged to study research methods and to participate actively in studies. Part of the training period is spent at the Veterans Administration Medical Center and Mercy Hospital as well as at the University of Maryland Medical System.

ENDOCRINOLOGY AND METABOLISM DIVISION

Professor and Acting Head
Bruce P. Hamilton, MB, ChB
Professor
Thomas B. Connor, MD
Associate Professors
Luis G. Martin, MD
James H. Mersey, MD
Assistant Professors
Leonard P. Kapcala, MD
Philip A. Levin, MD
Eugenia P. Pavlov, MD
Clinical Assistant Professors
Jennifer H. Hamilton, MD
William A. Valente, MD
Issam E. Cheikh, MD
Craig G. Haber, MD
Alfonso H. Janoski, MD
George D. Lawrence, MD
Instructors
Gwendolyn Bolling, MD
Francine Camitta, MD
Barry K. Lance, MD
Roy H. Phillips, MD
David M. Shearer, MD
Robert E. Stoner, MD
Clinical Associates
Gayle M. Andrews, MD
Lila Ceballos, MD
Mark A. Walker, MD
Research Associates
Gregory J. Kuzbida
Richard W. Pavlis, PhD

Undergraduate Courses
Second Year

PATH 520. In the second semester an intensive two-week course is given in collaboration with the departments of pathology, pharmacology and pediatrics. The course emphasizes the pathophysiologic basis for clinical disturbances of endocrine function.

Summer fellowships of eight to ten weeks are also offered. These emphasize clinical or research training, depending upon the student's interests and capabilities.

Fourth Year

ENDO 541. Clinical Endocrinology and Metabolism Elective. Seniors are provided a broad clinical experience through a four-week concentrated period of training devoted mainly to a study of patients with clinical disorders of endocrine function. Students are involved in the day-to-day management of hospitalized patients and participate in weekly outpatient clinics under the direct supervision of staff members. The pathophysiologic basis for diagnostic and management aspects is presented at daily rounds and at weekly in-depth conferences with the students. A separate elective of 12 weeks is also available to interested students who may desire a longer period of training and or wish to pursue a clinical or laboratory research project.

Affiliated Hospital Electives. Electives in endocrinology are available at York (Pa.) Hospital and the Baltimore Veterans Administration Medical Center.

Postgraduate Fellowships

Full-time positions are available to selected candidates who have usually completed two or more years of house officer training. Fellows participate in ongoing research projects and independent investigations are encouraged. These trainees also participate in all clinical activities within the division. A financial stipend is provided. Applications may be made through the division head.

GASTROENTEROLOGY DIVISION

Professor and Head
Robert G. Knodell, MD
Clinical Professor
Vernon Smith, MD
Associate Professors
Sudhir K. Dutta, MD
Salah M. Nasrallah, MD
Clinical Associate Professors
Richard A. Baum, MD
Howard F. Raskin, MD
Assistant Professors
Pamela L. Garjian, MD
Patricia S. Latham, MD
Linda E. Rosenthal, MD
David M. Saltzberg, MD
Jonathan B. Schreiber, MD
Clinical Assistant Professors
John A. Covington, MD
Michael E. Cox, MD
Renan J. Dureza, MD
Barry H. Epstein, MD
Neil D. Goldberg, MD
Gerald A. Hofkin, MD
Stanley A. Morrison, MD
Ashok K. Narang, MD
Michael N. Peters, MD
David B. Posner, MD
Richard B. Williams, MD
Instructors
David M. Fishbein, MD
James S. Novick, MD
Clinical Associates
Mark Antos, MD
Glenn P. Gwozdz, MD
Frank Kim, MD
Harry B. Matossian, MD
Duane T. Smoot, MD

Undergraduate Courses

First and Second Year

Minimester in Liver Disease. Twenty-four hours devoted to selected topics and current pathophysiology and treatment concepts in clinical liver disease. Twelve topics including jaundice, ascites, hepatic coma and portal hypertension are treated in depth.

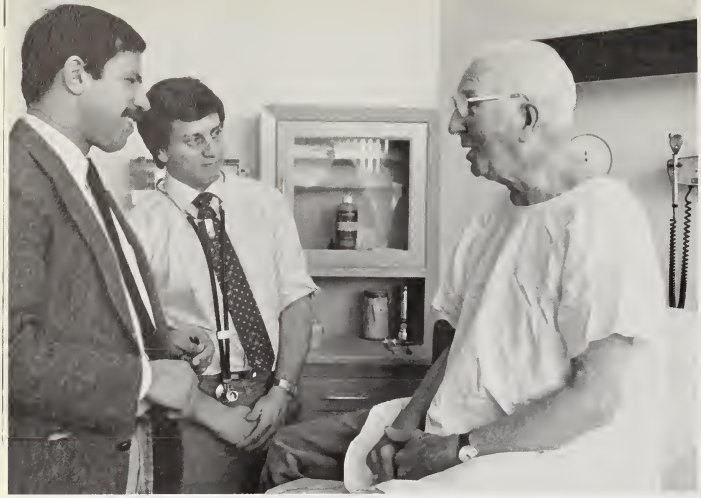
Fourth Year

GAST 544-01. Clinical Elective. A broad clinical experience in consultations, literature review and conferences on GI and liver problems. Students evaluate consultations with GI fellows and senior staff, plan diagnosis and management, and follow patients through definitive treatment and discharge. The rotation includes attendance at four hours of conference, 10 hours of GI clinical rounds and four hours of clinic experience weekly.

Summers Research Electives. GI, liver and nutrition electives are available and may carry a stipend. Individually arranged.

GENERAL INTERNAL MEDICINE DIVISION (PRIMARY CARE)

Associate Professor and Head
Mohamed S. Al-Ibrahim, MD
Professors
Robert L. Evans, MD
Irving I. Kessler, MD
Associate Professors
Sheldon Amsel, MD
James P. Keogh, MD
Herbert A. Kushner, MD
Clinical Associate Professor
Marshal Levine, MD
Assistant Professors
Alan T. Cariski, MD
Louis J. Domenici, MD
Emily S. Fairchild, MD
Milford M. Foxwell, MD
Priscilla A. Furth, MD
Joyce Y. Gross, MD
Bruce P. Kinosian, MD
James J. McPhillips, MD
Dorothy A. Snow, MD
Lawrence D. Weber, MD
Debra S. Wertheimer, MD
Susan D. Wolfsthal, MD



Clinical Assistant Professors
George Breza, MD
Richard N. Carey, MD
Anthony Demunecas, MD
Alan T. Cariski, MD
Victor R. Felipa, MD
Wilbur Fiscus, MD
Norman I. Goldstein, MD
Darrell M. Gray, MD
Daniel C. Hardesty, MD
Wally S. Hijab, MD
Michael H. Kelemen, MD
Victor E. Mazzocco, MD
Marguerite T. Moran, MD
Louis N. Randall, MD
Joseph Shear, MD
Edward T. Souweine, MD
Wayne S. Spiggle, MD

Instructors
Renato Espina, MD
Jane A. Fiscus, MD
Margaret A. Kaiser, MD
Gary A. Manko, MD
Aleyamma J. Mathew, MD
Gary A. Milles, MD
Richard G. Schmitt, MD
Charles E. Sheehan, MD
Clarence Smith, MD

Research Associate
Leah S. Kleinman

At the University of Maryland the concept of the primary care physician is that of an individual who is: 1) skilled in multiple facets of health/illness care, both acute and chronic; 2) an educator of peers, pupils and the public; 3) interested in the impact of health care delivery and able to effectively evaluate his or her own efforts as well as the efforts of others in this endeavor; 4) able to perform effectively in management decision making and planning; and 5) an active participant in the affairs of the community.

It is the goal of the Primary Care Internal Medicine Program to prepare such a physician, beginning with primary care elective experiences during the senior year and continuing with an extensive graduate medical education program. In addition to medical education, the division is responsible for the delivery of a wide range of primary health care services for ambulatory and hospitalized patients.

Research Interests

Through research grant support, health systems and health services research projects are being conducted. These projects include studies of the function, management and outcomes of a variety of medical practice organizations and research on hospital management and patient care.

Undergraduate Courses

Selected ambulatory primary care elective experiences are offered as part of the senior ambulatory rotations in internal medicine. For further information consult the *Medicine* section of the electives catalog. These primary care elective experiences occur both on campus and within the Area Health Education Center (AHEC) program off campus.

Graduate Program

The goal of the graduate medical education program in Primary Care Internal Medicine is the education and training of general internists who can be evaluated against the most stringent standards of quality in terms of their function as complete physicians. Our intent is to prepare these physicians for a new and expanded health care delivery role, and to be innovators in the development of improved health care services. Special learning experiences are encouraged and are presently available in geriatrics, risk assessment and preventive counseling and health services research. Residents have the unique experience of being associated with a team of health care profession educators, practitioners and research workers throughout the program. The faculty include primary care internists, primary care nurse practitioners, clinical pharmacists, psychiatrists, psychologists and social workers.

The Primary Care Internal Medicine Program meets the requirements for certification by the American Board of Internal Medicine, as well as providing a broad medical background and experiences in management, planning, teaching and evaluation of health care.

GEOGRAPHIC MEDICINE DIVISION

Professor and Head
Myron M. Levine, MD, DTPH
Professors
David F. Clyde, MD, PhD
Roy M. Robins-Browne, MD, PhD
Richard K. Sakai, PhD
G. Thomas Strickland, MD
Associate Professors
M. Suzanne Giannini, PhD
Richard F. Hollingdale, PhD
James B. Kaper, PhD
James R. Murphy, PhD
Clinical Associate Professors
Mary Lou Clements, MD
William E. Woodward, MD
Assistant Professors
Deirdre A. Herrington, MD
Karen L. Kotloff, MD
Genevieve S. Losonsky, MD
J. Glenn Morris, MD
Carol O. Tacket, MD
Steven S. Wasserman, PhD
Clinical Assistant Professors
Claudio F. Lanata, MD
Stephen D. Sears, MD
Instructors
Jaya Bansal, PhD
Jonathan R. Davis, PhD
Catterine Ferreccio, MD
Mark J. Finch, MD
Charles R. Young

Graduate Program

Postgraduate fellowships in Geographic Medicine are offered in conjunction with the Division of Infectious Diseases. Fellows spend their first year doing clinical rotations on the infectious diseases consultation services at the University of Maryland Medical System, the Baltimore Veterans Administration Medical Center, the Maryland Institute for Emergency Medical Services Systems and the University of Maryland Cancer Center. The second year is spent in clinical or laboratory research under the supervision of faculty members in the division.

Research may be conducted in the laboratories of the division in Baltimore or in one of the division's field areas in Chile, Peru, or Venezuela. The division is closely tied to the Center for Vaccine Development. Laboratories are fully equipped for work in molecular genetics, immunology, antigen purification, routine and enteric microbiology, parasitology (including animal studies), and antimicrobial sensitivity testing. Faculty research interests include the pathogenesis and epidemiology of enteric organisms such as *Vibrio cholerae* and other *vibrios, E. coli Salmonella, Shigella, Yersinia, rotavirus, Giardia,* and *Cryptosporidium.* Much of the research effort is directed towards developing vaccines against these enteric pathogens as well as vaccine testing against malaria and AIDS. The division maintains a close relationship with the Department of Epidemiology and Preventive Medicine where fellows may take courses in epidemiology and biostatistics during their training. Application for fellowships is made through the division head.

HEMATOLOGY DIVISION

Professor and Head
Charles A. Schiffer, MD
Associate Professors
R. Ben Dawson, MD
Douglas D. Ross, MD, PhD
Joseph R. Testa, PhD
Clinical Associate Professor
Rouben M. JiJi, MD
Assistant Professors
Meyer R. Heyman, MD
Edward J. Lee, MD
Samuel W. Needleman, MD
Clinical Assistant Professor
Michael B. Stewart, MD

Undergraduate Courses

First and Second Year

Members of the division participate in the hematology section of the sophomore course in clinical pathology. Clinical and laboratory features of all aspects of normal and abnormal hematopathology are presented.

Fourth Year

HEMA 541-01. Clinical Elective. Broad clinical experience in consultation, reading and multiple conferences on malignant and nonmalignant hematologic problems are available. Students evaluate hematology consultations with fellows and senior staff and have the opportunity to attend multiple clinical and laboratory conferences, within both the division and the University of Maryland Cancer Center. Rotations are for a minimum of four weeks and provide an extensive experience in bone marrow performance and interpretation.

Research Electives. Summer research electives in hematology and the study of the hematologic malignancies are available. Opportunities are available to work in the Cell Component Therapy Section of the University of Maryland Cancer Center (a specialized transfusion service), an active cytogenetics laboratory, an immunology laboratory studying antigenic characteristics of malignant cells, as well as the acquired immune deficiency syndrome (AIDS), electron microscopy laboratory and laboratories engaged in the study of leukemic cell differentiation and cellular pharmacology. Stipends may be available.

Postgraduate Fellowships

Two- to three-year postgraduate fellowships are offered in either hematology, oncology or the combination of the two subspecialties. Training is in coordination with the University of Maryland Cancer Center. A minimum of three years training and board eligibility in internal medicine are required.

HYPERTENSION DIVISION

Associate Professor and Head
Elijah Saunders, MD
Assistant Professor
Patricia A. Davidson, MD

Undergraduate Courses

First and Second Year

Selective lectures are given on hypertension as a part of the physiology and preventive medicine courses.

Fourth Year

Electives are available for fourth-year students. Students electing this course will be exposed to and participate in the entire program of the Hypertension Division. This includes experience and supervision in the diagnosis and treatment of hypertensive patients, on both an inpatient and outpatient basis. Daily rounds by senior members of the Hypertension Division will include students electing this rotation. Students will attend the Hypertension Clinic and also participate in the care of private patients in a very busy office devoted to the care of difficult hypertension problems. Students will participate in ongoing clinical research programs when appropriate. Students also will attend the bi-weekly hypertension clinical rounds, the bi-weekly Hypertension Center research rounds, and the bi-weekly Hypertension Journal Club.

Summer

Summer fellowships in hypertension are available to second-year students who have taken physical diagnosis.

Graduate Program

Electives for a minimum of one month are available for house officers in training at the University of Maryland Hospital as well as other hospitals in the region. Electives are encouraged for residents interested in cardiology, nephrology, or endocrinology as well as a career in internal medicine with emphasis on hypertension. Graduate physicians electing this rotation will gain considerable experience in the evaluation and treatment of difficult hypertension problems and will be instructed in the numerous modalities in treating the hypertensive patient. Interrelationships with many other disciplines in the University of Maryland, both clinical and nonclinical are an ongoing activity of the Hypertension Division through its major role in the University of Maryland Hypertension Center. Trainees will have an opportunity to work with hypertension specialists from the Johns Hopkins University School of Medicine and School of Hygiene and Public Health, the state Department of Health and Mental Hygiene, the Hypertension Commission of Maryland, the American Heart Association, and other organizations in the community which have an interest in hypertension.

Although the Hypertension Division does not currently have a fellowship program, training opportunities for fellows from other divisions can be arranged.

INFECTIOUS DISEASES DIVISION

Associate Professor and Head
John W. Warren, MD
Professor
Harold C. Standiford, MD
Associate Professors
George L. Drusano, MD
Sharon L. Hansen, PhD
James H. Tenney, MD
Clinical Associate Professor
Jean-Jacques Gunning, MD
Assistant Professors
Carlos I. Bustamante, MD
David E. Johnson, MD
Harry L.T. Mobley, PhD
Margaret B. Rennels, MD
Thomas J. Walsh, MD
Clinical Assistant Professors
William C. Anthony, MD
Alan D. Forrest, PharmD
Manjari Joshi, MD
John P. Manzella, MD
John C. McConville, MD
Celeste L. Woodward, MD
Instructor
Mark M. Stillwell, MD
Clinical Associates
Chandralaka Banerjee, MD
Wayne N. Campbell, MD
Barry C. Fox, MD
Steven Gitterman, MD
Charles W. Hoge, MD
Andrew F. Trofa, MD

Undergraduate Courses

Fourth Year

INFE 541-01. Infectious Diseases Elective. The discipline of infectious diseases is uncommon in internal medicine in that it is not restricted to one organ system. Indeed the types of patients seen by the Infectious Diseases Consultative Service are patients in virtually all departments of the hospital. These patients are often among the most acutely ill patients and/or the most difficult diagnostic enigmas within the hospital. These presentations are more than an academic challenge; many infectious diseases can be cured and the patient restored to previous health.

The diagnosis of infections and proper management of patients with these diseases are taught by exposure of the student to practical, clinical, laboratory and research problems. The student will see consultations under the supervision of a full-time teaching fellow or medical resident. Attending rounds are made six times weekly. A weekly clinical infectious disease conference for faculty, house staff and students alternates between the University of Maryland Medical System and the Baltimore Veterans Administration Medical Center. Additionally, student conferences covering common topics in infectious diseases are conducted by the

postgraduate fellows twice weekly for all the students taking the elective at either hospital. Specialized programs are available in pediatrics, the Maryland Institute for Emergency Medical Services Systems, and the University of Maryland Cancer Center.

Postgraduate Fellowships

The postgraduate fellowship is a two-year combined program offered by the Divisions of Infectious Diseases and Geographic Medicine. The first year is clinically oriented and is spent consulting on patients with problems related to infectious diseases. This experience is obtained through rotations at the University of Maryland Hospital, the Veterans Administration Medical Center, the Maryland Institute of Emergency Medical Services Systems, the University of Maryland Cancer Center and in the Department of Pediatrics. The fellow will see consults, supervise residents, interns and medical students, and spend much of his/her time teaching as well as in patient care. The second year of the program is oriented towards research and a third year for further research is recommended. Special interests in the division include pathogenesis of bacterial infections, infections in cancer patients or severely traumatized patients, nosocomial infections and mechanisms of action and pharmacokinetics of antibiotics. Application is made through the division head.

NEPHROLOGY DIVISION

Associate Professor and Head
John H. Sadler, MD
Associate Professors
Paul D. Light, MD
Emilio Ramos, MD
Assistant Professors
Michael K. Hise, MD
John Josselson, MD
David K. Klassen, MD
Yu-Liang Shen, MD
Brian M. Spar, MD
Barbara Urbaitis, PhD
Matthew R. Weir, MD
Stephen M. Zemel, MD
Clinical Assistant Professors
Cyrus E. Beekey, MD
Cedric W. Bryan, MD
Bayinnah Shabbaz, MD
Clinical Associates
Akshay N. Amin, MD
M. Theresa Behrens, MD
Angela L. Corbin, MD
Quintina B. Corteza, MD

Undergraduate Courses

Second Year

MEDC 525. Human Renal Physiology. This one-month minimester course allows full time concentration on renal and body fluid physiology with the students using themselves as laboratory subjects. Studies of renal function under different circumstances, mechanisms of water conservation, sodium balance and acid base balance will be studied. Laboratory sessions are held daily. Appropriate case presentations will illustrate disturbances of physiology. This class is limited to 16 students and offers an opportunity for prolonged and close contact with Division of Nephrology faculty as well as experience in laboratory measurements and observations of renal function through personal in vivo testing.

Fourth Year

NEPH 541-01. Clinical Nephrology Elective. Students who have completed their required junior electives in medicine, surgery, pediatrics and obstetrics may elect a clinical rotation in nephrology. One-month to three-month electives will be accepted. The student is expected to become thoroughly familiar with the approach to patients with kidney diseases and acquainted with clinical procedures. Each student will present at one nephrology conference. The typical rotation involves the student in seeing consultations with fellows and attending nephrologists, rounds on in-patients, Renal Clinic activities and exposure to the dialysis program. Students with special interest in particular aspects of kidney function or kidney disease may be permitted to pursue those after consultation with the division head.

NEPH 541-03. Nephrology Student Fellowship Elective, Maryland General Hospital. Students are exposed to the practice of clinical nephrology and to the management of acute and chronic renal failure.

Postgraduate Fellowships

Qualified physicians may apply for full-time fellowships in nephrology. Although a one-year clinical fellowship may be specially arranged, the standard fellowship is for two years of training. The first year is structured to produce broad experience in clinical nephrology, its procedures and its literature. Basic experience in the research lab is provided. The second year is largely elective, permitting fellows to pursue their chosen direction with planning and supervision. Additional years of experience for those undertaking special projects are available. Fellows completing this program are qualified and prepared to be certified in nephrology. The renal fellowship provides full clinical responsibility for numerous complex problems in renal pathophysiology, in the management of dialysis patients and the care of patients undergoing kidney transplantation. The laboratory offers experience in studies of renal metabolism/function interrelationships and immunologic studies of kidney disease. The fellow is given significant responsibility in teaching third- and fourth-year students and in the supervision of residents on the consulting service.

ONCOLOGY DIVISION

Professor and Head
Joseph Aisner, MD
Professors
Nicholas R. Bachur, MD, PhD
Stephen C. Schimpff, MD
Associate Professors
Merrill J. Egorin, MD
Joseph A. Fontana, MD, PhD
Richard S. Kaplan, MD
David A. Van Echo, MD
James C. Wade, MD
Clinical Associate Professor
Ko-Pen Wang, MD
Assistant Professors
Jeffrey Abrams, MD
L. Austin Doyle, MD
Mario A. Eisenberger, MD
Arif Hussain, MD
Teresa J. Melink, MSN, ANP
Clinical Assistant Professor
Matilda Hop-Won So, MD
Instructors
Barbara C. Conley, MD
Howard L. Parnes, MD
Vundyala V. Reddy, MD
Clinical Associates
Chandra D. Belani, MD
Anuradha B. Chakravarthy, MD
Brenda W. Cooper, MD
Russell R. DeLuca, MD
Robert E. Fisher, MD
John C. Gutheil, MD
Mohamad A. Hussein, MD
Peter L. Kennedy, MD
Peter F. Lenehan, MD
Austin June Ma, MD
Hyo-Jong Park, MD
Thomas I. Sweet, MD

Undergraduate Courses

Fourth Year

MEDC 549-01. Medical Oncology Elective. Medical oncology provides students and postgraduate physicians with in-depth studies of the diagnosis, natural history and treatment of human cancers. In particular, patients with neoplastic diseases are treated according to treatment programs illustrating the opportunities for physical and emotional treatment and support of patients with cancer. Clerkships in oncology provide close interactions with fellows and oncology attendings for a one-on-one experience. The wide diversity of internal medicine diseases seen during the natural history of many cancers makes this an intense course in the treatment of many internal medicine problems common to adult patients. Clerkships on the consult services show the interaction with other specialties as well as the early detection, diagnosis and staging. The many weekly conferences provide didactic information about natural history, new treatments and evolutionary changes in the laboratory understanding of neoplasia.

PULMONARY DIVISION

Associate Professor and Head
Lewis J. Rubin, MD
Associate Professor
Thomas J. Kulle, PhD
Clinical Associate Professors
Edward J. Rusche, MD
Peter B. Terry, MD
Assistant Professors
Robert J. Albin, MD
Rebecca Bascom, MD
Gerard J. Criner, MD
Jeffrey D. Hasday, MD
Henry J. Silverman, MD
Mary L. Tod, PhD
Clinical Assistant Professors
William B. Davidson, MD
Carmen A. Fratto, MD
Clinical Associates
Robert DeMarco, MD
David P. Green, MD
Howard T. Jacobs, MD
Richard J. Murray, MD
L.K. Peredo-Berger, MD
Carmen G. Salvaterra, MD

Undergraduate Courses

First Year

MPHY 501. Members of the division take part in teaching the physiology course with emphasis on the clinical application to basic respiratory physiology. This includes an introduction to clinical medicine and the sessions in the course on correlative medicine.

Second Year

PATH 520. In the systemic pathology course, two weeks are devoted to the respiratory system. The teaching of clinical medicine is integrated with epidemiology, pharmacology and microbiology, and is closely correlated with the teaching of physiology and pathology. This is not a course in respiratory diseases, but the most common and important groups of diseases are included.

Fourth Year

PULM 541-01. Pulmonary Diseases Elective. Fourth-year students participate in all of the activities of the division under the supervision of fellows and faculty. They see patients in the wards, in consultations, and in the outpatient clinic. The students learn to interpret tests of pulmonary function and attend all of the conferences in which fellows and faculty participate. The emphasis is on the correlation of clinical features with pathophysiologic and roentgenographic features.

PULM 541-05. Medical Intensive Care Elective, University of Maryland Hospital. The goal of this course is to provide students with clinical experience in managing patients seen in a medical intensive care unit. Students will function at the intern level as primary physicians and will work with the resident in charge, as well as the attending physician. Students will receive a sound background in circulatory and respiratory physiology. They will be exposed to various invasive techniques, including arterial line insertions, Swan-Ganz catheterizations and chest tube placements. In addition there will be exposure to the use of mechanical ventilation in the critically ill patient.

Postgraduate Fellowships

Stipends are available for the support of six fellows at the current University of Maryland Medical System postgraduate scale. Three years of training in internal medicine are required. The goal of the program is to train physicians who are competent in the subspecialty of pulmonary and critical care medicine, and in basic or clinical investigation.

RHEUMATOLOGY AND CLINICAL IMMUNOLOGY DIVISION

Professor and Head
Barry S. Handwerger, MD
Assistant Professors
Raymond H. Flores, MD
Barbara S. Fox, PhD
Barbara W. Needleman, MD
Marcia C. Schmidt, MD
Clinical Assistant Professors
J. Wolfe Blotzer, MD
Thomas S. Zizic, MD
Instructor
Paul A. Gertler, MD

Undergraduate Courses

First Year

Members of the Rheumatology Division participate in teaching the immunology section of the microbiology course.

Third Year

During their rotation on medicine at UMMS or the VA Medical Center, junior medical students interact with rheumatology faculty and fellows on the rheumatology consult service. A weekly Rheumatology Grand Rounds and weekly joint conference are open to students.

Fourth-Year Students and House Officers

The Rheumatology Division offers several electives for senior medical students and medical house officers designed to present the spectrum of rheumatic disease and approaches to diagnosis and management. Integration of clinical features with the mechanisms of disease processes is accomplished through informal tutorial sessions as well as didactic lectures. The rationale for the various management programs including drug therapies, physical medicine and orthopaedic surgery is emphasized. Experience is gained in performance of diagnostic procedures (e.g., arthrocentesis) and in interpretation of relevant laboratory data.

Postgraduate Fellowships

The Division of Rheumatology and Clinical Immunology offers a three-year fellowship which emphasizes training in both the clinical and research aspects of rheumatology. The purpose of the fellowship is to produce M.D. scientists who are well trained clinically and scientifically and who are dedicated to an academic, research-oriented career. Three years of prior training in internal medicine are required.

MICROBIOLOGY AND IMMUNOLOGY

Professor and Acting Chairman
Paul Fiset, MD, PhD
Professor Emeritus
Charles L. Wisseman, Jr., MD
Professors
Laure Aurelian, PhD
Gerald A. Cole, PhD
Paul Fiset, MD, PhD
Barry S. Handwerger, MD
Kenneth P. Johnson, MD
G. Thomas Strickland, MD, PhD
Research Professor
Robert Traub, PhD
Associate Professors
Abdul F. Azad, PhD
Ollie R. Eylar, PhD
Edmond A. Goidl, PhD
James B. Kaper, PhD
George K. Lewis, PhD
William F. Myers, PhD
David J. Silverman, PhD
Research Associate Professors
Suzanne Holmes Giannini, PhD
Paul M. Hoffman, MD
James R. Murphy, PhD
Assistant Professors
Barbara S. Fox, PhD
Barbara A. Hanson, PhD
Judith L. Lovchik, PhD
Barbara W. Needleman, MD
Research Assistant Professors
John A. Bilello, PhD
Roberta Kamin-Lewis, PhD
Jose V. Ordonez, MD
Adjunct Assistant Professor
Jonathan F. Smith, PhD

Training in microbiology and immunology within the medical school curriculum occurs primarily during the sophomore year when all students are required to take medical microbiology and immunology. Emphasis is placed on medical aspects of microbiology and immunology. In addition, elective courses specifically designed for medical students and selected Graduate School courses are available to medical students in all years. Individual faculty members are available to provide instruction and guidance throughout the medical curriculum.

The department also offers the PhD degree. Although the MS degree may be offered in special instances, priority will be given to PhD aspirants. This department encourages students to enroll in the MD/PhD program.

Research Interests

The research programs within the Department of Microbiology and Immunology reflect its orientation towards the broad biology of infectious and parasitic diseases. Projects include molecular and basic immunology, immunopathology, host-parasite interactions at the cellular and organismal levels, genetics and pathogenesis, field ecology and epidemiology and intervention mechanisms such as vaccine development and field trial. Emphasis has been on, but is not limited to, vector-borne rickettsial, viral and parasitic (malaria) agents. A new program focusing on viral and immunological diseases of the CNS is under development and will be a collaborative effort with the Department of Neurology. Medical students may participate for elective credit in the research programs within the department. The department serves as a World Health Organization Collaborating Center for Rickettsial Reference and Research.

Undergraduate Medical Program

Second Year

MMIC 520. Medical Microbiology and Immunology (8). First semester. Though the precise time distribution will vary throughout the course, there will be an average of five lecture hours and seven hours in laboratory and group conferences per week. This course begins with an introduction to basic principles of immunology and then proceeds to consider the major groups of bacteria, spirochetes, fungi, rickettsiae, viruses and parasites that cause human disease. Emphasis is placed upon an analysis of the properties of microorganisms thought to be important in pathogenesis of infection and interaction with host mechanisms, epidemiology, and control measures. (Staff)

Electives

Students are encouraged to take elective work throughout their training. The following are designed specifically for medical students:

MMIC 514. Medical Zoology and Parasitology. (Drs. Traub, Myers and Farhang-Azad)

MMIC 589. Research in Microbiology. (Staff)

A number of Graduate School courses are also available to qualified students. Interested students should contact the department for details.

NEUROLOGY

Professor and Chairman
Kenneth P. Johnson, MD
Professors
Stephen R. Max, PhD
Richard F. Mayer, MD
Thomas R. Price, MD
Ludwig Sternberger, MD
Associate Professors
David Camenga, MD
Antoinette DeFasio, PhD
Paul Fishman, MD, PhD
Maria Gumbinas, MD
C. Lee Koski, MD
Hillel S. Panitch, MD
James Reggia, MD, PhD
Marshall Rennels, PhD
Granger G. Sutton, MD
Clinical Associate Professors
John Eckholt, MD
Ramesh Khurana, MD, BBD
Anatol Oleynick, MD
Richard Taylor, MD
Rodrigo Toro, MD
Research Associate Professors
Rita Berndt, PhD
Otis Blaumanis, PhD
Paul M. Hoffman, MD
Assistant Professors
Elizabeth Barry, MD
Gregory K. Bergey, MD
Christover Bever, MD
George Dmytrenko, MD, PhD
Edward S. Gratz, MD
Mark Kelly, PhD
Stacy Rudnicki, MD
Clinical Assistant Professors
Terry Detrich, MD
Abraham A. Genut, MD
Barbara Hulfish, MD
Morton Kramer, MD
Sheldon Margulies, MD
Michael Miller, MD
Thaddeus Pula, MD
Michael Sellman, MD
Research Assistant Professors
John Bilello, PhD
Patricia A. Grady, PhD
Roberta Kamin-Lewis, PhD
Foorozan Mokhtarian, Phd
Peggy Swoveland, PhD
Instructors
Nicholas Capozzoli, MD
Daniel Drubach, MD
Victor Mark, MD
Clinical Instructors
Anastocia Decastro, MD
Christine Gray, PhD
Maurice Offen, MD
Solomon Robbins, MD
Pavanjiti Sawhney, MD
Peter Schilder, MD, PhD
Richard Weisman, MD

Neurology is the study of the normal and diseased nervous system that includes central, peripheral and neuromuscular systems. Faculty members participate in courses in all four years of undergraduate medical education. While only a relative few medical students will choose careers in medical or surgical neurology, or in the basic neurosciences, all medical graduates must have sufficient understanding of the basic structure and function of the nervous system to perform a satisfactory neurological examination, recognize and treat the many common neurological disorders, and to know when to refer the patient to a neurological specialist. Of special importance is the ability to distinguish between functional and organic neurological symptoms or signs.

The discipline of neurology has maintained close ties with basic science and by its complex but logical nature, has typified the scholarly aspects of medicine. Recent methodological and scientific advances have created a new and therapeutically oriented specialty which is represented in the philosophy and goals of this department.

Research Interests

Research activities, at both the basic neuroscience and the clinical levels, play an important role in the activity of the department. A broad program in neuro-immunology and biology is under way. The department holds a demyelinating diseases clinical center grant from NIH and in the last four years has been one of the most active centers in the United States and Europe in the conduct of trials of new forms of therapy for multiple sclerosis. Basic science and clinical studies in the demyelinating diseases are closely integrated. Several department members are active also in the study of cerebrovascular disease and its consequences. A clinical stroke center funded by NIH has also been established. Special emphasis has been placed on the application of computer sciences to the diagnosis and treatment of stroke and a strong departmental program studies language disorders. A very active program in diseases of peripheral nerve and muscle has been undertaken as well. Special emphasis has been placed on the pathogenesis of Guillain-Barre syndrome and the treatment of myasthenia gravis. A newly developed program is focused on epilepsy with special interest in cases that fail medical therapy and must be considered for neurosurgery.

An expanded program in neurorehabilitation has been developed. Rehabilitation sites for neurologically damaged patients are at Montebello and Kernan Hospitals in Baltimore. Specialized research programs are being developed primarily in the rehabilitation of stroke, head injury and multiple sclerosis patients.

Undergraduate Medical Program

First and Second Years

NEUR 510. Neurological Sciences I. Lecture demonstrations of clinical cases constitute an integral part of this course. There is emphasis on correlation of anatomy and physiology with clinical material. Neurologic aspects of physical diagnosis are taught in the second year of medical school with instruction in performance of the normal neurologic examination as well as examination of selected patients with neurologic disorders. (Drs. T. Price and G. Sutton)

NEUR 520. Neurological Sciences II. In collaboration with the Department of Pathology, and with contributions from other clinical and basic science departments, there is a correlative course given in the second year of medical school in which pathology of the nervous system is correlated with clinical disease. (Dr. D. Camenga)

Third Year

NEUR 530. Neurological Sciences III. All members of the third-year class have a three-week clerkship on the neurology-neurosurgery service at the University of Maryland Medical System/ Hospital or the Baltimore Veterans Administration Medical Center. A didactic series of lecture-demonstrations is given by the neurology and neurosurgery faculty, and students attend the combined conferences in both disciplines. In addition, students attend rounds and may assist in the performance of some procedures. Under house staff and attending staff supervision, students are responsible for the care of patients with neurological disorders.

Electives

NEUR 541. Clinical Electives. After completion of the third year, students are offered a variety of clinical experiences on the neurological service at: University of Maryland Medical System/ Hospital, Mercy Hospital, Montebello Rehabilitation Center, St. Agnes Hospital, Baltimore Veterans Administration Medical Center and York (Pa.) Hospital. The neurologic examination of the patient is emphasized, as well as the study and application of a wide variety of specialized neurologic diagnostic techniques. Each student will become proficient in the taking of a neurologic history, the performance of the neurologic exam, the formulation of a reasonable diagnostic impression or differential diagnosis, a plan of investigation and management for several of the more common neurologic problems. (Dr. C.L. Koski)

NEUR 548. Neurological Research Electives. In all four undergraduate years, a limited number of students will have the opportunity to work with individual members of the department in the following areas: 1) cerebrovascular physiology; 2) neuromuscular research; 3) neurophysiology; 4) vascular ultrastructure (SEM and TEM); 5) neurochemistry; 6) neurovirology; 7) autonomic nervous system; and 8) computers and neurology. Through involvement in ongoing research, the student will learn the principles and methods of investigating a problem. In some instances, especially with the longer electives, publication of results will be possible. (Dr. R.F. Mayer)

Fellowships

Students who have completed their first, second or third years and have an interest in neurologic sciences may apply for additional training in clinical neurology or in one of the research laboratories of the department. Qualified students may receive remuneration as fellows for the ten-week fellowships taken during vacation periods.

Graduate Studies

There is a fully approved three-year training program in the specialty of neurology at the University of Maryland Medical System/Hospital. This provides for clinical training as well as rotation through the associated basic science disciplines. In addition, fellowships are available for subspecialty neurology training, such as EEG and EMG. For further information contact the department chairperson.

REHABILITATION DIVISION

Professor and Head
Norman H. Bass, MD

Associate Professor
Lewis Goldfine, MD

Clinical Professors
B. Stanley Cohen, MD
George Lentz, MD
Kurt Raab, MD
Leon Reinstein, MD

Ajunct Associate Professor
Gerald Felsenthal, MD

Assistant Professors
Christine B. Feliciano, MD
Norman Rosen, MD
Henry Spindler, MD

Clinical Assistant Professors
Frederick J. Balsam, MD
Annamaria Basili, PhD
Sonia Estruch, MD
Tia-San Huang, MD

Research Assistant Professor
Jerome V. Danoff, PhD

Adjunct Assistant Professor
Inder Chawla, MD

Clinical Instructors
Charles Dankmeyer, Jr., BS
Leon Palapac, MD
David Piefer, MD
Dorothy Shannon, PhD
Frank Shea, MD
Thomas Weiss, PhD

The University of Maryland School of Medicine has developed a research and training center in the area of neurologic rehabilitation with the full knowledge that current life-saving expertise in the fields of trauma (head and spinal cord injury), combined with major technological advances in medical and surgical neurology, has yielded and will continue to yield the most severely disabled persons. There is no indication that the incidence of neurological disability will decrease; more likely it will increase.

The Division of Rehabilitation is committed to the education of medical students, resident physicians, physical therapists and other allied health professionals. Expectations for the next decade indicate that the rehabilitation field in this country is not going to wait for residency programs to train the physiatrists needed to provide professional direction for neurological rehabilitation programs. Accordingly, neurological rehabilitation probably will depend on other neurologists, internists, pediatricians, and neurological and orthopedic surgeons—to carry the load. These physicians will need not only appropriate training in rehabilitation management, but exposure to the frontiers of fundamental research in neuroscience, particularly in the areas of neuroplasticity and recovery of function. To this end a two-year fellowship program in neurologic rehabilitation has been established.

OBSTETRICS AND GYNECOLOGY

Professor and Chairman
M. Carlyle Crenshaw, Jr., MD
Professor Emeritus
Willard M. Allen, MD
Professors
Eli Y. Adashi, MD
Eugene D. Albrecht, PhD
Maimon M. Cohen, PhD
James P. Durkan, MD
Marcos J. Pupkin, MD
Umberto VillaSanta, MD
Associate Professors
Joann A. Boughman, PhD
Herbert S. Gates, MD
Gay M. Guzinski, MD
David A. Nagey, MD, PhD
Ernesto Rivera-Rivera, MD
Clinical Associate Professors
Robert M. Barnett, MD
James H. Dorsey, MD
Edmund B. Middleton, MD
Richard S. Munford, MD
Clifford Wheeless, MD
Assistant Professors
Lindsay S. Alger, MD
Charles R. Boice, MD
Geri L. Fromm, MD
Eugene Katz, MD
Janet Kennedy, MD
Stuart A. Schwartz, PhD
Marcia F. Schwartz, MD
Susan Willard, MD
Clinical Assistant Professors
Mukund S. Didolkar, MBB
Sylvan Frieman, MD
Andrew London, MD
Ghevont W. Wartanian, MD
Barry M. Wolk, MD
Herbert L. Yousem, MD
Research Assistant Professors
Eleuterio Hernandez, MD
Instructors
Monica A. Buescher, MD
Mary A. Facciolo, MD
Andrew M. Malinow, MD
Howard D. McClamrock, MD
Katherine Miller-Bass, MD
Carol L. Mullins, MD
Devereux N. Saller, Jr., MD
Ruth Ann Zern, MD
Clinical Instructors
Methap Aygun, MD
Dennis S. Ginsberg, MD
Hope U. Griffin, MD
Emerson R. Julian, MD
Cyrus Lawyer, MD
Patricia A. Payne, MPH
Louis N. Randall, MD
Michael J. Sindler, MD
Joseph R. Tiralla, MD
Associate
Norman Levin, MD
Research Associate
Jack N. Wright, PhD
Assistant
Robert S. Coplan, MD

The Department of Obstetrics and Gynecology emphasizes three areas of concern: education, research and service.

Educationally, the department provides a learning experience that encourages each student, regardless of ultimate career choice, to develop professional attitudes, diagnostic skills and knowledge relevant to the human female and to her sexual reproductive system. This experience enables each student to assume more effective responsibility for the general delivery of health care to the adolescent, to the adult and aging female and to the newborn.

The student is taught to recognize more accurately those patients who require special gynecologic consultation. Health-related social problems such as family planning are discussed as well as other aspects of population control, sexual difficulties, sterilization and induced abortion.

The educational material is presented so as to familiarize students with all sources of knowledge relevant to these subject areas. Students may extend their knowledge and skills in a direction and depth appropriate to current and ultimate career goals. Students are also encouraged to take electives in basic, clinical and social research.

The service roles focus on the general areas of obstetrical and gynecologic care. Obstetrics deals with a high-risk pregnancy population and provides excellent educational opportunities for both student and resident. Specialty clinics in endocrinology, complicated pregnancy, cancer, pre- and postoperative evaluation, and family planning provide specific, specialized areas of instruction in addition to serving large numbers of patients. Cancer detection and therapy plays a major part in the gynecologic program.

The department utilizes audiovisual aids to enhance the educational experience of both medical students and residents. The faculty also contributes to the postgraduate educational programs at the University of Maryland Medical System/Hospital and throughout the state.

Undergraduate Medical Program

Third Year

OBST 530. Clinical Clerkship. Students are assigned to obstetrics and gynecology for a period of six weeks. As clinical clerks they participate in the original diagnostic studies, pelvic surgical procedures and postoperative care of hospitalized patients. Instruction in prenatal and gynecologic outpatient care is accomplished in the outpatient department. Seminars and departmental conferences with the attending staff and house officers are employed for teaching the art of correlating observations, diagnosis and therapy. Frequent and close contact with faculty is achieved by means of a preceptorial system which assigns a group of two or three students to a member of the faculty for the entire clerkship. As an alternative to the clerkship at the University of Maryland Medical System/Hospital, a similar instructional program is offered to a limited number of students by the obstetrics and gynecology departments at Mercy, South Baltimore General and St. Agnes Hospitals. (Staff)

Fourth-Year Electives

OBST 541. Obstetrics and Gynecology Elective. The student may choose to spend a four-week elective in one of five subspecialty areas which include high-risk obstetrics, endocrinology, oncology, ambulatory ob/gyn and human genetics. (Staff)

Affiliated Hospitals. Electives are available at Mercy, South Baltimore General and Sinai Hospitals.

OPHTHALMOLOGY

Professor and Chairman
Richard D. Richards, MD

Professors
Merlyn Rodrigues, MD, PhD
Stanley S. Schocket, MD
Shambhu Varma, PhD

Clinical Professor
Leeds E. Katzen, MD

Associate Professors
Vinod Lakhanpal, MD
Verinder S. Nirankari, MD

Clinical Associate Professor
Stephen B. Hameroff, MD

Assistant Professors
Emery Billings, BA
Edward J. Goldman, MD
James W. Karesh, MD
Shalom Kelman, MD
Margaret Koh, MD
Mark W. Preslan, MD

Clinical Assistant Professors
Stanley J. Amernick, MD
David A. Braver, MD
Peter Bzik, MD
John J. Creamer, MD
Gilbert N. Feinberg, MD
Julian R. Goldberg, MD
Robert L. Kasper, MD
Earl D. Kidwell, MD
Martha B. Leffler, MD
Alfred Meisels, MD
Jay N. Parran, MD
Jerome Ross, MD
Richard M. Susel, MD

Clinical Instructors
Stephen Blum, BS
Theodore E. Cryer, MD
John Gambill, Jr. MD
Dahlia R. Hirsch, MD
Surinder Kaur, MD
Paul A. Kohlhepp, MD
Peter T. Lapinsky, MD
Renee A. Lerner, MD
Robert A. Loeb, MD
Kathleen H. Miller, MD
Vincent M. Notarangelo, MD
Thomas O'Rourk, MD
Mohammed S. Ousqui, MD
Lois Polatnick, MD
Brian J. Winter, MD

Research Associate
Paul Tittel, BS

The Department of Ophthalmology offers electives during the junior and senior years in clinical ophthalmology and research ophthalmology. For the clinical clerkship, time is divided among the outpatient clinic, ward and operating room. Students are expected to gain experience with diagnostic instruments used in ophthalmological evaluations. Patients with a wide range of diseases are seen in the clinic where faculty with expertise in all ophthalmological subspecialty areas are present. Conferences and grand rounds are included in the program. Self-instructional aids are available.

Research Interests

Research efforts of the Department of Ophthalmology currently concentrate on ocular changes from diabetes mellitus and ocular toxicity of radiant energy. Other projects include biochemical effects of aldose reductase and specific inhibitors on the lens, including oxygen toxicity to the lens, particularly as related to light-induced damage. Also, projects related to hormonal control of retinal pigment epithelium, as well as experimental ocular pathology, form a major part of our research program. Opportunities exist for elective participation by qualified students in this active program of ophthalmic biochemical research. Postdoctoral fellowships in ophthalmic biochemistry are also available.

Graduate Program

A three-year residency program providing clinical training is offered at the University of Maryland Medical System, with rotations to Mercy Hospital and the Wilmington, Delaware VA Medical Center. Appointment is by application to the Department of Ophthalmology, University of Maryland Medical System.

Postgraduate Program

Special courses for both nonspecialists and ophthalmologists are given at various times throughout the year by the Program of Continuing Medical Education.

PATHOLOGY

Professor and Chairman
Benjamin F. Trump, MD

Professors
Nicholas DeClaris, ScD
R. Ben Dawson, MD
Peter J. Goldblatt, MD
Philip M. Grimley, MD
Mary Hall-Craggs, MD
Oscar A. Iseri, MD
Donald A. Kristt, MD
Elizabeth M. McDowell, PhD
Wolfgang J. Mergner, MD, PhD
Fathollah F. Mostofi, MD
Peter Rasmussen, MD
Michael Salcman, MD
Moon L. Shin, MD
Ludwig A. Sternberger, MD
Colin Wood, MD

Adjunct Professors
Ivan Steven Baskin, PharmD, PhD
B.R. Brinkley, PhD
Leslie Sobin, MD
Sergei Sorokin, MD
Robert A. Squire, DVM, PhD
Marie Valdes-Dapena, MD
Renu Virmani, MD

Clinical Professor
Yale H. Caplan, PhD

Associate Professors
Ronald L. Anthony, PhD
Anti U. Arstila, MD, PhD
Richard D. Broadwell, PhD
Bennett B. Edelman, MD
Anne W. Hamburger, PhD
Denise M. Harmening-Pittiglio, PhD
Ih-Chang Hsu, PhD
Raymond T. Jones, PhD
Kookmin M. Kim, MD
Edward C. Knoblock, MS
Thomas Koch, PhD
Kuano U. Laiho, MD
Michael Lipsky, PhD
Jason M. Masters, PhD
Matti A. Pentilla, MD
Abulkalam Shamsuddin, MD, PhD
John E. Smialek, MD
Chen-Chih J. Sun, MD
James Tenney, MD
Joseph R. Testa, PhD

Adjunct Associate Professors
Belur S. Bhagavan, MD
Dennis T. Burton, PhD
John W. Combs, MD, PhD
Raffaele David, MD
Carol Sue Gleich, PhD
Robert Wenk, MD

Clinical Associate Professors
David G. Bostwick, MD
William J. Hicken, MD
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Dezso K. Merenyi, MD, MBA
Walter F. Oster, MD
Andrew J. Saladino, MD
Edward L. Sherrer, MD
James E. Taylor, MD

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Barry M. Heatfield, PhD
Hans E. Kaiser, PhD

Assistant Professors
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John E. Adams, MD
Jules J. Berman, MD, PhD
Richard Cardy, DVM
Willie W. Cartwright, MS
Ai-Shuan S. Cherng, MS
Neil Constantine, PhD
Paul D. Crane, PhD
Ann B. Dixon, MD
Laurence Austin Doyle, MD
Julie L. Eisman, PhD
Edward W. Gabrielson, MD
Mohammad A. Hafiz, MBBS
Sharon Hansen, PhD
Elizabeth S. Hill, MA
Rouben Jiji, MD
John P. Johnson, MD
Thomas W. Jones, PhD
Myong W. Kahng, PhD
Kevin P. Keenan, DVM, PhD
Walter B. King, Jr., MD
Theodore J. Kura, Jr.,PhD
Patricia Latham, MD
Louis Marzella, MD, PhD
Stephen R. Max, PhD
Eric B. May, PhD

Joseph L. McMichael, MS
Vinayak Pawar, PhD
John V. Petrucci, MD
James H. Resau, PhD
Deanna S. Robbins, PhD
Barry A. Silverman, DSc
David A. Symonds, MD
Anna L. Trifillis, PhD
Marion G. Valerio, DVM
Abu N. F. Zaman, MBBS

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Yasmeen S. Haider, MD
Violet H. Jiji, MD
Gregory R. Kauffman, MD
Charles P. Kokes, MD
Barry S. Levine, PhD
Ramiro P. Linando, MD
Virginia Ling, MD
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Bert F. Morton, MD
Carlos M. Orbegoso, MD
Jongsei Park, PhD
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Dennis F. Smyth, MD
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Esperanza Taimson, MD
Robert A. Yetter, MD
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William Coleman, PhD

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Watson P. Kime, MD
John N. Kraeuter, PhD
Andrew R. Mayrer, MD
Selvin Passen, MD
William R. Platt, MD
Peter G. Robertson, PhD
Alberto C. Seiguer, MD
Amalia E. Seiguer, MD
Warren Sheffield, DVM, PhD
Michael K. Stoskopf, DVM

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Victor Albites, MD
Mark Atcherson, BS
Irene K. Berezesky, BA
Barbara Caldwell, BS
Seung-Han Chang, MS
Betty Ciesla, BS
Ali Daneshvar, MD
Janis Glatzel, BS
Glenn A. Jockle, MD
Ulrika V. Mikel, MS
Robert Pendergrass, BS
Patricia C. Phelps, AB
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Michael Simon, BS
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Daina M. Buivys, BS
David F. Carney, PhD
Ren-Sheng Chen, MD
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Benjamin Cummings, PhD
Kathryn A. Elliget, MS
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Mary J. Hinzman, PhD
Eric Hudson, BS
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Andrew S. Kane, MS
Gerald J. Kolaja, DVM, PhD
Ann G. Muhvich, BA
Carnell Newkirk, MS
Louise E. Ramm, PhD
Renate Reimschuessel, VMD
Thomas T. Tillotson, BS
Padma Vanguri, MS

The primary goal of the Department of Pathology is the better understanding of human disease with emphasis on mechanisms of disease and changes occurring at the subcellular level and in molecular terms. The student achieves this goal in three phases: 1) by acquiring the basic principles of pathology and applying those principles to the diagnosis and study of health care delivery as expressed in diagnostic areas such as surgical pathology, clinical pathology, cytology, forensic pathology and autopsy pathology; 2) by establishing a philosophy of critical evaluation and judgment concerning the problems of health and disease in humans; and 3) by developing feelings of personal responsibility and ethics for the practice of medicine.

The department's philosophy is that the study of disease includes both structure and function and is carried out from the level of the patient to that of the molecule.

The student is exposed to anatomical and clinical hospital pathology services with additional training at Baltimore Veterans Administration Medical Center and other local hospitals.

Research Interests

Research efforts in the Department of Pathology focus upon the pathobiologic mechanisms of human disease at the cellular, subcellular and molecular levels. Current projects involve a broad spectrum of diseases to include cancer, immunologic disease, heart disease, shock, infectious disease and aging.

Cancer research efforts focus upon accurately defining the sequence of events within cells following their exposure to confirmed carcinogens, mutagens and environmental toxins. This involves the development of varied strategies for assaying human risk from environmental pollutants and the development of animal and fish models for human disease with environmental etiologies.

Research efforts in heart disease are directed toward providing a definitive description of the mechanisms which lead to cell death subsequent to the depletion or complete loss of oxygen supply. Identification of parameters whose manipulation might result in impeding or halting cell death and development of improved methods of therapy for preventing the damaging effects of shock are integral components of this research.

Faculty research projects in infectious diseases focus on the delineation of the mechanism by which microbes invade and destroy human cells; the identification of microbial antigens with the capacity to elicit an autoimmune disease in the host; the study of mechanisms of immunologic injury as related to complement-mediated lysis; immune complex diseases and autoimmunity; and the analysis of the events leading to cell death as a consequence of the normal process of aging.

Undergraduate Medical Program

Second Year

PATH 501. General and Systemic Pathology. The essentials of pathology are covered in such a way as to form a good foundation for the student's continuing medical education. The course is divided into "general" or pathobiology and systemic pathology. It starts with the study of the basic principles of pathology as embodied in the areas of cell injury, inflammation, immunopathology, neoplasia, and environmental and forensic pathology. This is followed by the study of diseases of the various organ systems. Interdepartmental seminar-type presentations are given covering broad areas that are of interest to various disciplines. Clinical input is given through correlative sessions stressing mechanisms of disease. The course consists of lectures, small group laboratories and seminars. The laboratory sessions are in smaller groups under the direction of faculty members assigned to each student group. (Drs. Trump and Hall-Craggs)

Electives

Supplementing the core program are more than 20 course offerings for freshman, sophomore and senior medical students. These opportunities span a wide range of departmental activities from system-oriented courses such as renal, pulmonary, neurological or cardiovascular pathology to process-oriented instruction such as environmental pathology, carcinogenesis and research seminars. The latter are conducted with the aid of a number of guest speakers who are leading authorities in their fields. Research and clinical preceptorships are encouraged.

Other courses are of more general interest and include seminars in clinical pathology or clinical clerkships in Baltimore area hospitals. Medical students also have access to courses in experimental pathology such as histochemistry, tissue culture or pathological biochemistry.

Most of the aforementioned courses, conforming with the 4-1-4-1 arrangement of the freshman and sophomore years, are offered in January and June while others are given during the regular semester as longitudinal electives. For course listing, time and content description consult the pathology section in the appropriate elective catalogs.

Advanced Accelerated Program in Pathology (AAPP). The AAPP admitted the first group of students in the fall of 1975 in an effort to permit early specialization and target-oriented education. The track in pathology begins in the freshman year. It makes use of all the resources of the Department of Pathology, and includes three types of experience: 1) exposure to the practice of pathology; 2) study of one selected field of study; and 3) exposure to research of disease. Five students are admitted during their first year. They are required to fulfill all the requirements of the medical school program; however, they are not pledged to seek a career in the field of pathology. The training in the track program should provide the student with the knowledge of a one-year residency program. Time spent in training within the track program can count towards elective or residency time. (Drs. Mergner and Dawson)

Graduate Program

MS or PhD Degree. The graduate program offers training and instruction in modern experimental pathology. Particular fields of interest presented are: instruction in pathological biochemistry, electron microscopy, immunopathology, histochemistry, tissue culture and physiology, as well as the various fields generally considered within clinical pathology.

MD/PhD Combined. Interested students should consult the department chairperson. For details of course offerings and admission requirements, see the pathology section in the Graduate School catalog.

PEDIATRICS

Professor and Chairman
Michael A. Berman, MD

Professors Emeritus
J. Edmund Bradley, MD
Raymond L. Clemmons, MD
Samuel S. Glick, MD

Professors
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Felix P. Heald, MD
Murray M. Kappelman, MD
Thomas Kenny, PhD
Allen A. Kowarski, MD
George A. Lentz, Jr., MD
Myron Max Levine, MD
Allen D. Schwartz, MD
J. Tyson Tildon, PhD
Karl H. Weaver, MD

Adjunct Professor
John W. Littlefield, MD

Clinical Professors
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Robert Brodell, MD
Richard W. Sarles, MD
Stuart Walker, MD

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Research Professor
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Joel I. Brenner, MD
Hammond J. Dugan III, MD
Maria T. Gumbinas, MD
Ronald L. Gutberlet, MD
Misbah Khan, MBBS, MPH
Prassana Nair, MD
John O'Brien, MD
Sheridan Phillips, PhD
Salvatore Raiti, MBBS
Margaret Rennels, MD
Charles Shubin, MD
Bernice Sigman, MD
Renee Wachtel, MD

Clinical Associate Professors
Sophia Balis, DDS
Robert W. Bright, MD
Mary Coleman, MD
Dennis J. Headings, MD
Theodore H. Kaiser, MD
Taghi Modarressi, MD
Gary W. Nyman, MD
Jay Perman, MD
Celeste L. Woodward, MD

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Bamford Owen, PhD
Lois Roeder, PhD
Horst R. Zielke, PhD

Assistant Professors
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Miriam Blitzer, PhD
Carol Carraccio, MD
Nancy Cartelli, MD
Stuart A. Chalew, MD
Regina Cicci, PhD
Howard Dubowitz, MD
Mychelle Farmer, MD
Renee Fox, MD
Richard L. Gorman, MD
Carolyn Gould, MD
Edward Gratz, MD
Karen Gregerson, MD
Alice Heisler-Hayes, MD
Lisa Horton, MD
John P. Johnson, MD
Phillip A. Levin, MD
Ruth Luddy, MD
Charles Medani, MD
Janet Meegan, MD
Erik Meijboom, MD
Robert G. Meny, MD
Kathleen O'Neil, MD
Maureen Parrott, MD
Leslie J. Raffel, MD
Richard Ringel, MD
Elliott Samet, MD
Marcia Schwartz, MD, PhD
Stuart Schwartz, MD
Elisa Jo Slater, MD
Rose Marie Viscardi, MD
Susan Woolsey, MS
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Shahid Aziz, MD
John R. Bacon, MD
Stefanie Bergey, PhD
Howard Birenbaum, PhD
Maureen M. Black, PhD
David Bromberg, MD
Robin Chernoff, MD
Martha Coleman, MD
Alan M. Davick, MD
Stephen R. Feldman, MD
Linda Gerson, PhD
Linda Grossman, MD
Joyce Harper, MD
Frederick Heldrich, Jr., MD
Robert A. Jodorkovsky, MD
Wendy Klein-Schwartz, PharmD
Robert Kritzler, MD
Richard C. Lavy, MD
Richard D. Leavitt, MD
Daniel J. Levy, MD
Lani Majer, MD
Judith McLaughlin, MD
David I. Otto, MD
Susan R. Panny, MD
Elaine M. Rubenstein, MD
Judith D. Rubin, MD
Robert E. Scalettar, MD
Ronald J. Sweren, MD
Deborah Weber, MD
Deborah Young-Hyman, PhD

Research Assistant Professors
Judith C. Lovchik, PhD
Mary C. McKenna, PhD
Alejandro Rivarola, MD
Raymond H. Starr, Jr., PhD
Carol Zielke, PhD

Visiting Assistant Professor
Carlos E. Villeda, MD
Instructors
Carlos Alana, MD
Zenaida Alidon, MD
Karen Armour, MD
Kathleen Baker
Sheri Bellow, PhD
Tzvi Bistritzer, MD
James Chamberlain, MD
Isabelita Frattarola, MD
Jack Gladstein, MD
Ellen Glotzbach, MD
Aaron Hanukoglu, MD
Afsaneh Hessamfar, MD
Carrie Hufnal-Miller, MD
Gary Isen, MD
Melvin Klein, PhD
Karen Kotloff, MD
Roxanne Marcille, MD
Hector Pierantoni, MD
Gerald Poley, MD
John Santelli, MD
Steven Savarino, MPH, MD
David Schonfeld, MD
Christina Seifert, MD
Benson Silverman, MD
Clinical Instructors
Alfredo Herrera, MD
Karen Kumor, MD
Nicolette Morris, MD
Daniel Timmel, MSW
Research Associates
James Bosma, MD
Ann F. Jewell, MS
Spyros Monopolis, MD
Susan Schindler, BS

The efforts of the Department of Pediatrics are directed towards providing the best possible services for children while deriving an educational program to meet the needs of individual students, physicians and other health care workers. By preparing physicians and other health care professionals to provide high quality, comprehensive care for infants, children and adolescents, the department can best satisfy the vital need for child health services in the community. Included among the providers of health care are not only pediatric generalists, but also basic scientists, health educators, subspecialists, medical center academicians, community health planners and students of all of these disciplines. The Department of Pediatrics seeks to play a dynamic role in the development of these health professionals throughout all levels of their education: undergraduate, graduate and postgraduate.

A clinical clerkship experience is offered with inpatients, full-term infants and ambulatory patients. A wide variety of electives is also available which provide opportunities to explore aspects of preclinical and clinical pediatric research, additional individualized inpatient and ambulatory clinical clerkships, specific preceptorships, subspecialty experiences and community pediatrics.

Research Interests

The research efforts of the Department of Pediatrics are directed toward understanding problems related to abnormal development. These studies employ sophisticated research strategies and the newest technical equipment to obtain answers to problems in the perinatal, neonatal, childhood and adolescent periods. Several major categories of research include an investigation into the causes and treatments of mental retardation, a multidisciplinary examination of the various aspects of the sudden infant death syndrome, the examination of immunological and microbiological factors associated with problems of early development, a series of studies related to neonatal metabolism and a well-defined group of psychological studies. These and other research efforts have been successfully integrated into the service and teaching program within the department.

Undergraduate Medical Program

First Year

PSYCH 510. Behavioral and Social Sciences. Presentations are made characterizing aspects of growth and development.

Second Year

PEDI 521. Pediatric Physical Diagnosis. Individualized experience is offered in taking a pediatric medical history and in learning the techniques used in the examination of infants, children and adolescents. (Dr. Lentz)

Third Year

PEDI 530. Clerkship. Students are assigned as clinical clerks for a period of six weeks at the University of Maryland Medical System/Hospital, Mercy, Sinai, Union Memorial or South Baltimore General Hospitals. Each of these facilities provides clinical experience in inpatient pediatrics (including nurseries) as well as in ambulatory services for children and adolescents.

Regularly scheduled conferences include pediatric subspecialty areas and are supplemented with chart conferences, case discussions, evaluations of neonatal mortality and journal reviews. Small group tutorials cover concepts of pathophysiology and the therapeutic management of pediatric patients. The total impact of the illness on the child and family is emphasized. The student is encouraged to become familiar with all aspects of pediatric practice. (Dr. Nair)

Fourth Year

PEDI 540. Pediatric Electives. The variety of elective experiences includes student internships in full-term and intensive care nursery settings, on wards and within ambulatory care centers. Laboratory research studies may be pursued as well as experiences in specific pediatric subspecialties. Please refer to the medical school electives catalog. (Dr. Weaver)

PEDI 548. There is a possibility of spending the required eight-week senior student internship on the pediatric wards of the University of Maryland Medical System/Hospital or one of the affiliated hospitals.

PEDI 541. Pediatric ambulatory sites are available for the required eight-week senior ambulatory rotations.

Minimester Electives

The department offers a wide range of experiences including some in preclinical and clinical research. For a complete listing, please refer to the medical school minimester catalog.

PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

Professor and Chairman
Edson X. Albuquerque, MD, PhD

Professors
Joseph Aisner, MD
Laure Aurelian, PhD
Angela Brodie, PhD
William T. Carpenter, Jr., MD
Mohyee E. Eldefrawi, PhD
Martin Helrich, MD
Frederick C. Kauffman, PhD
Stephen C. Schimpff, MD
Robert Schwarcz, PhD
Daniel Weinreich, PhD

Research Professor
Amira T. Eldefrawi, PhD

Visiting Professor
Nabil M. Bakry, PhD

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Nicholas R. Bachur, MD, PhD
John W. Daly, PhD
Leopoldo DeMeis, PhD
Donald R. Jasinski, MD
Martin G. Larrabee, MD, PhD
Kenner Rice, PhD
Mordechai Sokolovsky, PhD
Peter Usherwood, PhD
Bernard Witkop, PhD, ScD

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Merrill J. Egorin, MD
Edward French, PhD
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Adjunct Associate Professors
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Karin Sikora-VanMeter, PhD
Cynthia Smith, PhD
Paul Yarowsky, PhD

Research Associates
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Yasco Aracava, PhD
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David O. Calligaro, PhD
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Wagner Cintra, PhD
Shyamal DasGupta, PhD
Shripad Deshpande, PhD
Shashi Nath Dube, PhD
John Fernando, PhD
Daniel B. Grant, PhD
Dinesh Garg, PhD
Lydia Hernandez-Davis, PhD
Sandra Inkster, PhD
Maria Teresa Lima Landman, PhD
Yukihiro Ohno, PhD
Ary Ramoa, PhD
Renato Rozental, PhD
Shebl Sherby, PhD
Caden Souccar, PhD
Karen Swanson, PhD

The department's objectives are to teach undergraduate medical students those principles underlying the distribution, metabolism, mechanism of action and toxicity of therapeutic agents or substances. At the graduate level, three areas of studies are incorporated: 1) training in the modern techniques of pharmacology (molecular biology, receptor biochemistry, cell biology, tissue culture, radioimmunoassay, electron microscopy, traditional electrophysiology, patch clamping, etc.); 2) research directed toward study of new drugs and increasing effectiveness of existing drugs used in treatment of human diseases (e.g., in areas of virology, oncology, neuropeptides); and 3) research to better understand actions of drugs and toxins (e.g., drugs acting at the neuromuscular junction or elsewhere in the central and peripheral nervous system, endocrine drugs, chemotherapeutic agents, insecticides).

The Graduate School catalog lists a number of graduate courses and electives offered to medical students. Arrangements for combined MD/PhD training are made on an individual basis.

Undergraduate Medical Program

Second Year

MPET 520. Medical Pharmacology. The pharmacological basis for therapeutics is presented with an emphasis on the mechanism of drug action. (Dr. Albuquerque and faculty)

Minimester Electives

The department faculty offers a variety of courses during the minimester portion of the curriculum. Consult the electives catalog for further details.

PHYSIOLOGY

Professor and Chairman
Mordecai P. Blaustein, MD

Professor Emeritus
Dietrich C. Smith, PhD

Professors
Charles A. Barraclough, PhD
Abram B. Fajer, MD, PhD
Edmund M. Glaser, DEng
Lawrence Goldman, PhD
Barbara C. Hansen, PhD
Gabriel G. Pinter, MD
Daniel S. Ruchkin, DEng
James B. Wade, PhD

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Eugene D. Albrecht, PhD
Bradley E. Alger, PhD
Robert J. Bloch, PhD
Bruce K. Krueger, PhD
W. Jonathan Lederer, MD, PhD
Lewis J. Rubin, MD
Michael K. Selmanoff, PhD
Phyllis M. Wise, PhD

Adjunct Associate Professor
Edward G. Lakatta, MD

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Gregory Bergey, MD
Karen A. Gregerson, PhD
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Leonard P. Kapcala, MD
Robert D. Koos, PhD
Thomas C. Vary, PhD
W. Gil Wier, PhD

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Nathaniel T. McMullen, PhD
Malka G. Scher, PhD
Richard D. Vaughan-Jones, PhD

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Dirk J.B. Beuckelmann, MD
Joshua Berlin, PhD
Neri M. Cohen, PhD
Ilene R. Cohen-Becker, PhD
Kathryn A. Colby, PhD
Diane Doerner, PhD
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Colin Nichols, PhD
Sandra Petersen, PhD
Thomas A. Pitler, PhD
Juergen Schaeffer, DrMEd
Christine K. Shu, PhD
Roger G. Sorensen, PhD
Maria A. Sortino, MD
Nancy G. Weiland, PhD

The Department of Physiology provides lecture, laboratory and seminar courses in the principles of human physiology for medical students. Also offered are advanced courses in specialized areas of physiology for graduate students, fellows and interested medical students.

Research Interests

The faculty of the Department of Physiology is dedicated to elucidating fundamental new information about the mechanisms that underlie a variety of physiological processes. Many of the department's research programs focus on three general areas; cell and membrane physiology, neurobiology and reproductive endocrinology. The research programs encompass a number of topics with direct clinical relevance, including projects related to aging, cardiac arrhythmias, contraception, diabetes, epilepsy, hypertension and schizophrenia. Medical students are encouraged to participate in research activities during summer and other elective periods. Opportunities for combined MD-PhD training are also available.

Undergraduate Medical Program

First Year

MPHY 501. Principles of Physiology and Biophysics. Lectures, laboratory and conferences are offered during the spring semester. This foundation course covers the principles of human physiology and biophysics and includes cellular, cardiovascular, renal, respiratory, gastrointestinal and endocrine physiology. Conference periods are used for clinical correlations and small group discussions. Under some circumstances, a limited number of students may elect an alternative program of laboratory work and/or library reading with written reports and conferences.
(Dr. Blaustein and staff)

MPHY 511. Advanced Seminars in Physiology. Elective course. (Drs. Pinter, Fajer and Lederer)

MPHY 513. Neurological Sciences. See Anatomy. (MANA 513)

Other Opportunities. A variety of minimester courses and advanced seminars or research in special areas of physiology are open to interested students during the elective period or other free time. Combined MD/PhD programs, requiring additional course work and original research, are offered for highly qualified medical students.

Fourth Year

MPHY 542. Seminars in Physiology Elective. Advanced graduate seminars in selected fields of physiology (e.g., cardiovascular, renal, endocrine and neural) are offered, usually two each semester.

MPHY 548. Research Elective in Physiology in Selected Fields.

PSYCHIATRY

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John A. Talbott, MD

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Eugene B. Brody, MD
Robert G. Grenell, PhD
S. Virginia Huffer, MD
Ephraim T. Lisansky, MD

Professors
George U. Balis, MD
William T. Carpenter, Jr., MD
Herbert S. Gross, MD
Stuart L. Keill, MD
James J. Lynch, PhD
Russell R. Monroe, MD
Constantine J. Sakles, MD
Walter Weintraub, MD

Clinical Professors
Sheila H. Gray, MD
John R. Lion, MD
Jonas R. Rappeport, MD
Richard M. Sarles, MD
Nathan Schnaper, MD

Research Professors
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Carol Tamminga, MD

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Lois Flaherty, MD
Howard Goldman, MD
Gerard Hunt, PhD
Anthony Lehman, MD
Ellen McDaniel, MD
Taghi M. Modarressi, MD
Thurman Mott, Jr., MD
S. Michael Plaut, PhD

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Lino Covi, MD
George E. Gallahorn, MD
Theodore Kaiser, MD
Denis Madden, PhD
Gary Nyman, MD
Neil Warres, MD

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Deborah Cameron, MS
Edward French, PhD
Thomas Hanlon, PhD
Robert Schwarcz, PhD
Rachel Waters

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Norman H. Bradford, PhD
George M. Cohen, MS
Rolfe Finn, MD
Brian W. Hastings, MD
Brian Hepburn, MD
C. Williams Hicks, MD
Pearl Katz, PhD
David Mallott, MD
Paul A. McClelland, MD
Spyros Monopolis, MD
Sheridan A. Phillips, PhD
Laura Primakoff, PhD
Susan Strahan, MD
Stuart Tiegel, MSW
Walter Windisch, PhD

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Katherine Ackerman, MD
Richard H. Anderson, MD
Louis H. Cohen, MD
Maureen Donnelly, MD
Patricia Farrell, MSW
Victor D. Fitterman, MSW
Samuel Goldberg, MD
Alicia J. Guttman, MD
Mohammad Haerian, MD
Sung-Up Hahn, MD
John Herron, MSW
Barbara Hulfish, MD
Leon Levin, MD
James Olsson, PhD
David Paskewitz, PhD
Egya Quaison-Sackey, MD
Edward Sananayake, MD
Daniel Storch, MD
David Student, MD
Ulku Ulgar, MD
Barbara Woolf, MD
Penelope P. Ziegler, MD

Research Assistant Professors
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David Cantor, PhD
Henry Holcomb, MD
Brian Kirkpatrick, MD
Ann Pulver, MD
Robert Schwartz, PhD
Gunvant Thaker, MD

Instructors
Jeffrey Rubin, BA
Silverine Samaranayake, MD

Clinical Instructor
Irvin I. Steinbach, MA
Research Associates
James An Nguyen, MD
Marie Bailey-Kloch, MD
Robert Buchanan, MD
Angelo Ceci, PhD
Rose K. Cringle, PhD
Ras B. Guchhait, PhD
Diane Jauch, MD
Donna Kane, BA
Gretchen Landenburger, MS
Kevin M. Lyons, MA
Duncan McCulloch, BS
John McGrath, MA
Patricia McKenney
Mary Miller, MA
Masayuki Nakamura, PhD
Susan L. Parks, BA
Susan Ridgely, MSW
Marlene Shaprio
Patricia Stimely
Ann Summerfelt, BA
Waldemar Turski, MD
Royce Waltrip, MD
Paula S. Wolyniec, MA
Faculty Research Assistants
Patricia Clifford
Martha Mastroberti
Judith Renner
Jan Shandkroff, BA

The goal of undergraduate psychiatric education is to acquire an understanding of and an appreciation for the application of behavioral and psychiatric principles in patient care and health maintenance through an exposure to a progressive sequence of intellectual stimulations, clinical experiences and appropriate professional socialization. More specifically, the curriculum aims to assist the student in: 1) acquiring a foundation of knowledge regarding the psychological, sociological and humanistic aspects of the practice of medicine; 2) mastering basic interpersonal and psychiatric skills relevant to the management of patients with medical and/or emotional illness; 3) emulating attitudes and values which enhance the professional roles and practices of a physician.

The curriculum is divided into a core program which consists of required courses offered during the first three years of medical education and an electives program which provides a variety of courses (clinical, didactic and research) for the students who are interested in furthering their knowledge and experience in some aspect of the theory and practice of psychiatry and its related fields. These elective courses are offered during the January and June minimesters of the preclinical years and in the senior year. The four-year Combined Accelerated Program in Psychiatry (CAPP) is offered as an advanced elective track to selected students with a special interest in the behavioral sciences.

Undergraduate Medical Program

First Year

PSYCH 510. Behavioral and Social Sciences. (72 hours). This interdisciplinary course provides a context for the integration of diverse behavioral science contributions which are relevant to the understanding of human behavior. Emphasis is on the emergence of a broader concept of life sciences that constitutes medicine, one that views the human organism holistically as a dynamic biological system whose inherent aspects of structure, organization, ontogeny and functioning are determined or influenced by developmental, intrapsychic, interpersonal and sociocultural factors. The course runs through both semesters for a total of 72 hours; 42 hours in the fall semester and 30 hours in the spring semester.

The purpose of the course is to assist students in: 1) acquiring a foundation of knowledge in psychological, sociological, and humanistic aspects of the practice of medicine based on the study of the behavioral and social sciences and clinical psychiatry; 2) learning about the behavioral aspects of human development which change throughout the life cycle; 3) understanding physician-patient interaction in various clinical situations including death and dying; and learning about basic psychophysiology of emotions and human interaction.

The course is presented in the form of lectures-presentations and small group sessions. Small group sessions are scheduled on a weekly basis throughout both semesters. Their purpose is to provide students with the opportunity to apply the concepts learned in class to medical practice situations.

First Semester: This section provides basic introductory concepts in the field of behavioral and social sciences, and is designed primarily to meet the needs of those students whose premedical curriculum did not allow sufficient exposure to these sciences. The central theme is man as an individual viewed from a developmental, intrapersonal, interpersonal and humanistic viewpoint, and his passage through the vicissitudes of the family life cycle. These basic dimensions of behavior are presented in the following course units: 1) human growth and development and 2) psychological, sociological, and cultural aspects of health, illness and treatment.

Second Semester: This section views man in his transactions with the environment and in the context of larger systems. Its major focus is on the psychological, interpersonal, and sociocultural aspects of illness and health care. Course units include: 1) physician-patient interaction and 2) issues of dying, death and grief.

Second Year

The goal of sophomore psychiatry is to provide students with basic psychiatric interviewing skills and with a foundation of clinical knowledge in the area of psychopathology and psychiatric diagnosis as a preparation for their junior clerkship in psychiatry. This sequence is organized around two courses as follows:

This course is part of the Introduction to Clinical Practice (ICP) which is devoted to specialty physical diagnosis and examination (psychiatry, pediatrics, and neurology).

The psychiatric course is devoted to psychiatric interviewing, history taking, and mental status examination. Rotation is two-hours a week for six weeks (12 hours), which is offered during the fall semester for 12 weeks (two rotations) on Friday afternoon and again in the spring semester for another 12 weeks (two rotations) on Friday afternoons.

The course uses a small group format, in which groups of five or six students meet with an instructor for six two-hour sessions. In the first session the instructor reviews the general principles and goals of psychiatric interviewing and mental status examination, and interviews a volunteer psychiatric patient from the inpatient service in the small group. Each week thereafter each student interviews another patient before his small group. Following the interview, the group discusses the interviewing technique, and describes the psychopathology elicited by history and mental status. Each week, as an assignment, the students write up either a comprehensive mental status examination of the interview they witness or a complete psychiatric history with mental status included. The write-ups are corrected by the instructors and returned to the students as an important source of feedback in improvement.

Instructors in small groups videotape the interviews. The tape is reviewed in the following session before a new patient is interviewed.

There are about 30 students per six-week rotation, assigned to seven groups (five to six students per group).

PSYCH 520. (60 hours). This course is designed to provide students with the basic concepts of clinical psychiatry including psychopathology and psychiatric treatment modalities. It is scheduled in a two-week block at the beginning of the spring semester.

The course format is based on brief lectures, audiovisual demonstrations (videotapes, films), and small group sessions. At the beginning of the course each student is given an instruction handbook, handouts, reprints, outlines, and a list of videotapes to be presented.

Clinical Years

PSYCH 530. Junior Psychiatry Clerkship. (6 weeks). The clinical clerkship in psychiatry is the main clinical psychiatric experience of a University of Maryland medical graduate. It is usually taken in the third year and is a six-week intensive experience usually combining inpatient and outpatient work in which the student is exposed to a variety of psychopathologies as well as a variety of treatment modalities. Under the preceptorship of a psychiatry resident and a ward attending, the student is assigned his own patients and families to work with. This involvement with and responsibility for patient and family provide an ideal setting in which the student, under supervision, can apply the psychosocial concepts he learned in his first year of behavioral sciences, with the concepts of psychopathology he learns in his second year and the clinical skills of psychiatric interviewing, history taking and mental status examination. Usually the student becomes an integral part of the ward milieu and treatment team.

The clerkship involves student assignments to the following training sites: Institute of Psychiatry and Human Behavior (IPHB), Walter P. Carter Center, Spring Grove Hospital and Baltimore Veterans Administration Medical Center.

Students rotating at the IPHB are assigned to both inpatient adult wards (two students per ward) and Brief Therapy Clinic. Night calls are required for students assigned to IPHB, the Carter Center, and the VA Medical Center. In all affiliated training facilities, students are assigned to wards or clinics under the supervision of residents and attending/clinical faculty.

The Brief Therapy Clinic at IPHB is a unique facility in which students serve as primary therapists under close faculty supervision. Students are assigned a minimum of two patients whom they follow during the six-week rotation. The clinic is staffed by eight students per rotation.

All students are required to attend the following didactic courses and conferences, which are offered on each Tuesday of the six-week rotation:

- Liaison/Consultation Psychiatry (1 hour)
- Clinical Case Conference (1½ hours)
- Alcoholism and Drug Abuse (1 hour)
- Psychopharmacology & Patient Management (1 hour)
- Basic Psychiatry Review (2 hours)
- Child/Adolescent Psychiatry (1 hour)

Students assigned to the inpatient wards of the IPHB and those of the affiliated hospitals are required to attend ongoing clinical case conferences, ward meetings, staff meetings, and other clinical activities.

Electives

The Department of Psychiatry offers elective courses in all four years of the medical curriculum. Elective courses scheduled in the Year I and Year II minimesters (January and June) span a variety of topics in behavioral sciences. Elective courses offered during the clinical years include: brief psychotherapy, community psychiatry, emergency psychiatry and forensic psychiatry, as well as individual clinical preceptorships.

Combined Accelerated Program in Psychiatry: CAPP Program

This elective track has become nationally visible for its success in engaging students in psychiatry through an advanced four-year curriculum that begins in the freshman year. In addition to participating in the psychiatry program, students are required to fulfill all of the requirements of a standard four-year medical curriculum. The program has continued to admit 12 freshman students each year. From the first month of the freshman year, the track provides an unfolding progression of combined didactic and clinical experiences in the behavioral sciences and in clinical psychiatry. The completion of this four-year program enables the student to graduate from medical school with a foundation of knowledge and skills at least equivalent to that provided by one year of traditional residency training in psychiatry.

A large clinical faculty is involved in providing didactic courses, clinical supervision, and continuing case seminars. About 30–40% of these students choose a career in psychiatry.

Fellowships

This eight-week program, supported by the National Institute of Mental Health, is offered to the students each summer. Students are assigned to the various clinical facilities of the IPHB and affiliated hospitals.

RADIATION ONCOLOGY

Professor and Chairman
Omar M. Salazar, MD
Associate Professors
George Harrison, PhD
Hipolito Poussin-Rosillo, MD
Wilfred Sewchand, ScD
Robert G. Slawson, MD
Research Associate Professor
Hubert A. Eddy, PhD
Adjunct Associate Professors
Harry Berman, MD
George M. Samaras, PhD
Assistant Professors
Pradip Amin, MD
Elizabeth Balcer-Kubiczek, PhD
Maria C. Jacobs, MD
Vinita Patanaphan, MD
Roberta Strohl, RN, MN
Adjunct Assistant Professors
I. G. Emanuel, MB, BS
Marcos Tepper, MD
Adjunct Clinical Instructor
James McCullouch, MS
Research Associates
Warren E. Better, BA
Tianhu Lei, PhD
Mehrdad Sarfaraz, PhD

The Department of Radiation Oncology is divided into six divisions: 1) Administration; 2) Clinical Radiation; 3) Clinical Physics; 4) Nursing; 5) Education and 6) Radiation Research, representing the various areas of interest within this specialty. All are closely interrelated to achieve improved management of the cancer patient.

The medical student is offered a broad exposure to oncology with emphasis on the principles of radiation oncology biology and physics through lectures, case presentations, demonstrations and participation in new patient and follow-up clinics. Uses and indications of the different types of radiation are presented as well as the use of combined modalities in the management of the cancer patient.

Research Interests

Departmental research efforts are focused upon many areas of oncology. The use of radiation as a systemic treatment agent, brachytherapy, hyperthermia, microcirculation of tumors and fractionation schemes represent several departmental research projects.

Undergraduate Medical Program

Third Year

During a three-week rotation through radiology, radiation oncology and nuclear medicine, students will spend three days in Radiation Oncology. A series of lectures designed to familiarize students with the principles of the specialty are given. Students also participate in conferences and clinics. (Dr. Poussin and staff)

Fourth Year

Elective in Radiation Therapy. Students interested in oncology are offered an opportunity to participate as members of the radiation oncology team. They become familiar with the evaluation, management and follow-up of cancer patients. Included are treatment planning, dosimetry and the use of interstitial and intracavitary sources of radionuclides. (Dr. Poussin and staff)

Graduate Program

An approved four-year residency program in therapeutic radiology is offered at the University of Maryland Medical System. Teaching is carried out through didactic lectures, clinics and numerous teaching conferences with emphasis on patient care, under the supervision of a full-time staff. Elective time is spent in related oncological specialties to promote the multidisciplinary concept of management of patients with cancer.

SURGERY

Professor and Acting Chairman
Michael Salcman, MD

The Department of Surgery is composed of six divisions: general surgery, neurological surgery, orthopaedic surgery, otolaryngology, thoracic and cardiovascular surgery and urology. The faculty of the various divisions participate in the teaching of anatomy, pharmacology, physiology and introduction to clinical medicine, and do not offer formal courses when the students enter their clinical clerkships. During this 12-week clinical clerkship period, time is divided among general surgery and the subspecialties of orthopaedics, otolaryngology, and urology. Students may serve clerkships at the University of Maryland Medical System or at one or more of the affiliated hospitals (Mercy, Maryland General, Francis Scott Key, St. Agnes, South Baltimore General, Sinai, Baltimore VA Medical Center).

Electives in surgical research and summer fellowships are available to students in all four years. More extensive clinical experience with greater patient responsibility is offered by all divisions as electives to students in their fourth year.

The surgical clerkships expose the student to disease entities which can or should be treated by operative intervention and to the physiologic and metabolic consequences of such intervention. Students learn to recognize conditions which will require surgical consultation. They gain an appreciation of wound care as well as familiarity with basic emergency procedures. This course of study enables the future internist, pediatrician or psychiatrist to discuss with his patient the probable treatment and prognosis of various surgical diseases. Further, students are given the opportunity to explore various surgical disciplines and to participate fully in the daily activities of the surgical teams.

Graduates of approved medical schools will be considered for residencies in general surgery, neurological surgery, orthopaedics, otolaryngology, thoracic and cardiovascular surgery, and urology.

GENERAL SURGERY DIVISION

Associate Professor and Acting Head
William A. Scovill, MD
Professors Emeritus
Harry C. Hull, MD
George H. Yeager, MD
Professors
Paul B. Chretien, MD
Fuad J. Dagher, MD
E. George Elias, MD, PhD
J. Laurance Hill, MD
John H. Siegel, MD
Clinical Professors
Alex J. Haller, Jr., MD
T. Brannon Hubbard, Jr., MD
G. Melville Williams, MD
Adjunct Professor
Bimal C. Ghosh, MD
Associate Professors
Elliott M. Badder, MD
Mukund S. Didolkar, MD
Nelson H. Goldberg, MD
Luis A. Queral, MD
William A. Scovill, MD
Adjunct Associate Professor
Andrew Munster, MD
Clinical Associate Professors
Everard F. Cox, MD
David L. Dudgeon, MD
Thomas R. Gadacz, MD
Neil Novin, MD
Baekhyo Shin, MD
Everett K. Spees, MD
Assistant Professors
Ruben F. Ballesteros, MD
Robert A. Barish, MD
Brian J. Browne, MD
James F. Burdick, MD
Francis A. Clark, Jr., MD
Carl M. Dunham, MD

Graham Fallon, MD
Philip J. Ferris, MD
Nelson L. Garnett, DVM
David R. Gens, MD
Arthur L. Gudwin, MD
Darrel A. Jaques, MD
William D. Lynn, MD
John A. Mansberger, MD
Philip R. Militello, MD
Roy A.M. Myers, MD
Joseph Orlando, MD
Ameen I. Ramzy, MD
Aurelio Rodriguez, MD
John A. Singer, MD
Carl Soderstrom, MD
Robert J. Spence, MD
Sullins G. Sullivan, MD
Vesna Tomazic, PhD
Elizabeth L. Tso, MD
Charles E. Wiles, MD
Hans R. Wilhelmsen, MD

Clinical Assistant Professors

James R. Buck, MD
Alexander P. Cadoux, MD
Donald D. Coker, MD
Paul M. Colombani, MD
Craig R. Dufresne, MD
Rene Gelber, MD
Herbert E. Gladen, MD
Alexander M. Guba, Jr., MD
Richard M. Hirata, MD
August D. King, Jr., MD
Hilbert M. Levine, MD
Stanley L. Minken, MD
Sidney S. Mir, MD
Anthony J. Raneri, MD
William B. Rever, Jr., MD
John R. Saunders, Jr., MD
Adam Szczypinski, MD
Edmund C. Tortolani, MD
Michael J. Yaremchuk, MD

Instructors

Donald M. Barrick, MD
William H. Bouchelle, MD
Raymond M. Cunningham, MD
Salvatore J. DeMarco III, MD
Louis E. Goodman, MD
Georgina A. Groleau, MD
Gregory M. Hall, MD
William A. Holbrook, Jr., MD
Arthur R. Jasion, MD
Sheldon H. Lerman, MD
Bruce G. Lowman, MD
Jerome Plasse, MD
Harold E. Ramsey, MD
Lauren A. Schnaper, MD
William F. Sindelar, MD
Robert J. Wilensky, MD
DePriest W. Whye, MD

Clinical Instructors

Steven L. Joffe, MD
John M. Wogan, MD

Associates

James R. Appleton, MD
William G. Arminger, MD
Elie J. Fraiji, MD
Moises Fraiman, MD
Roger L. Gordon, MD
William L. Macon IV, MD
Paul N. Manson, MD
George J. Mehler, MD
Constantine J. Padussis, MD
Joseph Romolo, MD
David S. Shear, MD
Edwin H. Stewart, MD

Clinical Associates

Denis Franks, MD
Larry Leonard, MD

Undergraduate Medical Program

Third Year

GSUR 530. The teaching of general surgery is conducted in the inpatient environment of the University of Maryland Medical System, Baltimore Veterans Administration Medical Center, Maryland General and Mercy Hospitals. Students are divided into groups of two or three for continuous assignment to individual patient areas. Upon admission to the service, selected patients are assigned to individual students who are expected to record a complete history, the results of a physical examination and required laboratory studies. A differential diagnosis, final diagnosis and recommendations for therapy must be included. Operation room participation is encouraged but not required, but varies according to the interest of each student.

The program is designed to give the student a broad overview of the fundamentals of the discipline of surgery in a clinical environment and includes contact with a wide variety of adult and pediatric patients. This includes patients with infections, neoplasms, trauma, endocrine disorders, vascular disease, gastrointestinal problems, metabolic disorders and congenital defects often requiring extensive medical evaluation followed usually by surgical therapy.

The student is responsible for core reading material which is identical regardless of hospital assignment. Emphasis throughout the course is placed on problem solving through correlation of basic science information with clinical diagnosis and management. Attendance is required at formal lectures given twice weekly at clinical conferences and grand rounds. Final evaluation is based upon clinical performance on the various services assigned, as well as a special examination provided by the National Board of Medical Examiners. Two four-week subinternships and five four-week electives must be taken.

Fourth Year

Two four-week subinternships and five four-week electives must be taken.

GSUR 541. Elective Clerkships. The student participates as an integral member of a surgical care team. Students may choose various services: general surgery, vascular surgery, surgical oncology, pediatric surgery, surgical intensive care, emergency medicine, plastic surgery and cardio-thoracic surgery at the University of Maryland Medical System.

Surgical ward clerkships are also available at the following affiliated hospitals: Francis Scott Key, St. Agnes,

Prince George's General, Maryland General, Union Memorial, Sinai and York (Pa.). (Other hospitals are available by special approval.)

At Francis Scott Key Hospital or York (Pa.) Hospital, electives are offered in the surgical emergency room and in plastic and reconstructive surgery.

Consult the medical school electives catalog for course details.

Graduate and Postgraduate Programs

A fully accredited residency is offered at the University of Maryland Hospital and two affiliated hospitals, Mercy and Maryland General Hospitals. Additionally, research fellowships are available, and short refresher courses are given for the practicing physician.

NEUROLOGICAL SURGERY DIVISION

Professor and Head
Michael Salcman, MD
Professors Emeritus
James G. Arnold, MD
R.K. Thompson, MD
Clinical Professors
Thomas B. Ducker, MD
William H. Mosberg, Jr., MD
Clinical Associate Professor
Jane M. Matjasko, MD
Research Associate Professor
Richard D. Broadwell, PhD
Assistant Professors
Edwin H. Bellis, MD
Fred H. Geisler, MD, PhD
Jonathan Greenberg, MD, JD
Walker L. Robinson, MD
G. Lee Russo, MD
John O. Sharrett, MD
Israel H. Weiner, MD
Clinical Assistant Professors
Charles M. Henderson, MD
Shalom E. Kelman, MD
Charles J. Lancelotta, MD
Donald G. Slaughter, MD
Joseph A. Soliman, MD
Instructors
Douglas J. Abbott, MD
Hatem S. Abdo, MD
David Cook, MD
Robert G. Hennessy, MD
Joseph K. Jamaris, MD
Edward L. Layne, MD
Paul D. Meyer, MD
Kamaljit S. Paul, MD
John B. Posey, III, MD
Jorge R. Ordonez, MD
Arun B. Sapre, MD
Henry M. Shuey, MD
Panayiotis L. Sitaras, MD
Fred N. Sugar, MD
Research Fellow
Eiji Moriyama, MD

Undergraduate Medical Program

First and Second Years

In the first year the staff participates in a combined program with the Department of Neurology in which correlative lectures and demonstrations are given during various basic science courses and applications of the neurological examination are demonstrated. During the second year there is an active program as part of the physical diagnosis course in which students examine neurological patients and discuss their findings with the faculty. Lectures on relevant topics are also presented as part of the second-year pathology course.

Third Year

In the third year, each student spends three weeks on a combined medical and surgical neurology rotation in which lectures are combined with clinical experiences gained on the two services. Opportunities are provided for observing neurosurgical procedures and participating in all the functions of the service.

Fourth Year

A fourth-year elective is available in general neurosurgery. The participation of the student is increased, both in the operating room and in the daily performance of patient care. Special preceptorships in pediatric neurosurgery, neuro-oncology and neurotraumatology are also available.

In all years, students are invited to participate in the ongoing programs of the neuro-oncology research laboratories in the areas of blood brain barrier physiology, model brain tumors, tissue culture, microwave hyperthermia and chemotherapy. Students interested in microneurosurgery, the pathophysiology of spinal trauma and neurophysiology are welcome in the other research laboratories of the division.

Graduate Studies

Rotations are offered to general surgery residents from the university and affiliated hospitals. A training program in neurological surgery is offered to graduates of accredited medical schools who have completed one year of surgical residency. The five-year program is accredited by the American Board of Neurological Surgery. Fellowships are available in neuro-oncology and neurotrauma.

ORTHOPAEDIC SURGERY DIVISION

Professor and Head
John E. Kenzora, MD
Associate Professors
Liebe S. Diamond, MD
Howard D. Dorfman, MD
Charles C. Edwards, MD
Alan M. Levine, MD
Roger H. Michael, MD
Gerhard Schmeisser, MD

Clinical Associate Professors
Robert C. Abrams, MD
Robert W. Bright, MD
Jerome P. Reichmister, MD
John J. Tansey, MD
Robert E. Zadek, MD
Adjunct Associate Professor
Youngil Youm, PhD
Assistant Professors
G. Howard Bathon, MD
Larry Becker, MD
Robert J. Brumback, MD
Andrew R. Burgess, MD
J. Scott Decker, MD
Michael A. Ellis, MD
Thomas Gillespie, MD
George H. Greenstein, MD
Homer C. House, MD
Dror Paley, MD
Attila Poka, MD
W. Haddox Sothoron, MD
Edward Wenzlaff, MD
Clinical Assistant Professors
William H. Baugher, MD
Charles A. Engh, MD
Stanley Friedler, MD
Adjunct Assistant Professor
Matthew T. Freedman, MD
Instructors
Lawrence Blumberg, MD
Joseph A. Ciotola, MD
Edward R. Cohen, MD
Leo A. Courtney, MD
Jivaka B. DeSilva, MD
Donald B. Haskins, MD
Michael Jaworski, MD
James C. Murphy, MD
George Ritchie, MD
William I. Smulyan, MD
Kenneth F. Spence, MD
Jack L. Wapner, MD
Thomas V. Whitten, MD
Stuart Winakur, MD
Clinical Instructor
Shelton C. Simmons III, MD
Research Instructor
Steven J. Poliakoff, MD
Clinical Associates
Eric L. Diamond, DPM
Wayne B. Leadbetter, MD
Marc Lenet, DPM
Michael Sherman, DPM

Undergraduate Medical Program

First and Second Year

Electives. Freshman or sophomore medical students may develop mini-mester electives in clinical orthopaedics or musculoskeletal research with individual members of the orthopaedic surgical faculty. Projects include anatomic dissections with research or clinical value, participation in ongoing projects at the Maryland Orthopaedic Research Laboratories, or clinical experiences emphasizing joint reconstruction, major trauma, or other disorders of the musculoskeletal system.

In addition to these electives, the Division of Orthopaedic Surgery provides a lecture series which may be attended by students at any level.

Third Year

OSUR 530. Orthopaedic Surgery: University of Maryland Medical System. The general principles of orthopaedic surgery are taught and medical students are introduced to fracture recognition and management, reconstructive surgery of the musculoskeletal system, and to common outpatient conditions affecting the musculoskeletal system. Under supervision, they participate in patient diagnosis and treatment as well as surgery. All students receive hands-on instruction on the uses and application of various splints and casting techniques. Students practice putting casts on and off each other under the supervision of the chief plaster technician. Daily student conferences and didactic sessions held by the resident and/or attending faculty are held in addition to the division's intensive academic program.

Orthopaedic Surgery: Affiliated Hospitals. A clinically oriented course in the principles and techniques of orthopaedic surgery is offered under the direction of the full-time University of Maryland orthopaedic surgery faculty at the James Lawrence Kernan Hospital for Crippled Children.

Fourth Year

Electives. Three senior students are selected each month for an internship-level clinical and surgical experience. One student is assigned to each of the services listed below. Students participate in the 10 weekly orthopaedic conferences and seminars at University of Maryland Medical System. Each of the senior electives is under the direction of an on-site full-time member of the orthopaedic faculty. A maximum of three senior students may take a senior elective during any one month.

University Teaching Service Electives (UMMS-H) (2)
Major Trauma and Spinal Injury Service Elective (MIEMSS) (1)

Graduate Studies

The Division of Orthopaedic Surgery offers an accredited four-year residency program. Clinical and surgical experiences are obtained in the foot, hand, tumor and chronic spine services at University of Maryland Hospital. The major trauma and spinal injury services are located primarily within the Maryland Institute for Emergency Medical Services Systems, and pediatric orthopaedics at the James Lawrence Kernan Hospital. An intensive academic program in basic science and clinical orthopaedic surgery has been developed for resident education. Students attend as many of these sessions as time allows. Each resident has a mandatory research assignment. Should a student be available and willing, he can volunteer to participate on one of these projects. Many students, especially those who are interested in orthopaedic residency, have had a significant role in these clinical projects.

OTOLARYNGOLOGY DIVISION

Professor and Head
Cyrus L. Blanchard, MD
Associate Professor
William C. Gray, MD
Clinical Associate Professor
Margaret M. Fletcher, MD
Assistant Professors
Regina L. Cicci, PhD
Albert Steiner, MD
Charles M. Suter, PhD
Clinical Assistant Professors
Dole P. Baker, MD
Franklin M. Bialostozky, MA
John F. Biedlingmaier, MD
Enzo Cosentino, MD
James J. Gerlach, MD
Hubert Leveque, MD
Edward N. Nachlas, MD
Barry E. Ominsky, MD
Instructors
Stanley Blum, MD
Marco Clayton, MD
Milton L. Engnoth, MD
Suzanne Florin, MA
Madeline J. Fox, MS
Susan G. Gold, MS
Juan M. Pardo, MD
Varah Vorasubin, MD
Clinical Instructors
Stewart I. Adam, Jr., MD
Anthony F. Hammond, MD
Thomas J. Toner, Jr., BA
Clinical Associate
Jong H. Won, MD

The division provides an introduction to the diseases of the head and neck. A wealth of opportunity is provided the student with an interest in communication disability and the clinical diseases where hearing, speech and language are of diagnostic significance.

The staff, with the assistance of the postdoctoral trainees, provides each student by example, lecture and direct tutorial instruction, the essentials with which to enter residency in such fields as family practice, pediatrics, general surgery, neurosurgery, psychiatry and otolaryngology.

Undergraduate Medical Program

Third Year

Third year students are introduced to the care of patients with diseases of the ears, nose and throat. One hour of auditory physiology and one hour of basic audiological technique are presented to each group by an audiologist. One hour of introductory speech pathology is presented by a speech pathologist; one hour of electronystagmography is presented by a nystagmographer.

Fundamental elements of otolaryngologic diagnosis and therapy are stressed in this approximately 14-day program.

Fourth Year

Electives. Electives are offered in the following areas: basic clinical otolaryngology, advanced otolaryngology, communication disorders, investigation in otolaryngology, physiology of hearing and surgical otolaryngology. For detailed course descriptions, consult the medical school electives catalog.

Graduate Studies

Resident training in otolaryngology is open to three residents in 1988–1989, alternating with two residents in 1990–1991 in each of the four years of this American Board of Otolaryngology-approved program. The program is currently accredited by the Accreditation Council for Graduate Medical Education.

THORACIC AND CARDIOVASCULAR SURGERY DIVISION

Professor and Head
Joseph S. McLaughlin, MD
Professors
Sufuh Attar, MD
R Adams Cowley, MD
John R. Hankins, MD
Associate Professors
John F. Miller, MD
Stephen Turney, MD
Assistant Professors
Thomas R. Coughlin, Jr., MD
Steven R. Gundry, MD
Alejandro J. Sequeira, MD
Instructors
Fred N. Cole, MD
Karl F. Mech, Jr., MD
Associate
Ferdinand S. Leacock, MD

Undergraduate Medical Program

Fourth Year

TSUR 541. Externship in Thoracic Surgery Elective. The main purpose is to present, in a clinical setting, the basic pathophysiological principles of thoracic and cardiovascular surgery, a highly specialized and demanding discipline. The student becomes a member of one of the teams on the service and serves in the capacity of an intern. Duration of the course is four weeks with a maximum of 12 weeks available.

Graduate Studies

The two-year residency program which admits one trainee each year is approved by the American Board of Thoracic Surgery. Applicants must be eligible for the American Board of Surgery examination at the start of the program. Residents are given an opportunity to assist and then perform all types of cardiothoracic operative procedures, including cardiopulmonary bypass, in a program designed to ensure progressive experience.

UROLOGY DIVISION

Professor and Head
John D. Young, MD
Adjunct Professor
Robert D. Jeffs, MD
Clinical Professor
Nasser Javadpour, MD
Associate Professors
Nasir Bashirelahi, PhD
Edward W. Campbell, Jr., MD
Suhayl S. Kalash, MD
Clinical Associate Professors
Stephen P. Cohen, MD
Earl P. Galleher, MD
Assistant Professors
Bruce W. Berger, MD
Lawrence C. Bezirdjian, MD
Louis C. Breschi, MD
Robert L. Doyle, MD
Howard C. Kramer, Jr., MD
Howard B. Mays, MD
James R. Powder, MD
Louis A. Shpritz, MD
Clinical Assistant Professors
Joel M. Cherry, MD
Ralph M. Howard, MD
Harold J. Kaplan, MD
Chawalit Suddhimondala, MD
Instructors
Frederick G. Bergmann, MD
Ray Brodie, Jr., MD
Stephen M. Busky, MD
Anand Dhanda, MD
Edwin S. Epstein, MD
Robert B. Goldstein, MD
Ira E. Hantman, MD
Gary F. Harne, MD
Steven R. Jaskulsky, MD
David S. McHold, MD
Shashikant Patel, MD
Harvey N. Schonwald, MD
Anthony O. Sclama, MD
Kofi E. Shaw-Taylor, MD
Harry W. Smith, MD
Harry S. Stevens, MD

The urologic curriculum is designed to introduce urologic principles as they relate to preservation of good health through maximum renal function, normal urine storage and transport, an acceptable voiding pattern, treatment and prevention of urinary infection, identification and management of neoplasm in the urinary tract and male reproductive system and management of urolithiasis in both sexes. Instruction is also given on disorders of the male reproductive tract including neoplasms, infertility and disturbance in sexual function.

Third Year

USUR 530. Junior Clerkship. Five to seven students are assigned to the division for 14 days at the University of Maryland Medical System. Each is asked to review and follow a patient with a different urologic problem and to present this patient to the group and a faculty member. Daily rounds and conferences are held. The students observe and participate in diagnostic and operative procedures and attend the outpatient clinic. Each student receives a list of study questions, some of which are reviewed at faculty sessions each day. Outlines for each of the nine lectures are given to each student.

Fourth Year

Electives. Students may elect an externship in urology at the University of Maryland Medical System or at Sinai Hospital.

Graduate Studies

The residency program consists of four years following two prerequisite years of training, one of which must be in general surgery. Each year, two are appointed and become co-residents at the end of the third year if progress in training has been satisfactory. The two PGY-3 assistant residents spend six months at both the University of Maryland and Sinai hospitals. The PGY-4 assistant residents divide their second year in urology with six months each at the Baltimore VA Medical Center and Sinai Hospital. The PGY-5 (third year) in urology is divided with six months in pediatric urology at the Johns Hopkins Hospital and six months in the research laboratory. The PGY-6 year as senior resident is divided into six months each at the University of Maryland Hospital and Baltimore VA Medical Center.

PROGRAM OF ONCOLOGY—UNIVERSITY OF MARYLAND CANCER CENTER

Joseph Aisner, MD
Acting Director

The University of Maryland Cancer Center was established by the Division of Cancer Treatment of the National Cancer Institute in 1965 as the Baltimore Cancer Research Center at the Wyman Park U.S. Public Health Service Hospital. In 1974 the Center moved to the University of Maryland, and remained an intramural NCI program under contractual arrangement between the NCI and the University of Maryland until 1982, when it became the University of Maryland Cancer Center. The clinical effort of the center was established as a separate clinical entity within the University of Maryland Medical System. Formal academic status was granted for the Cancer Center in the School of Medicine as the "Program of Oncology" and the Cancer Center faculty have academic appointments in various clinical and basic science departments of the School of Medicine.

The activities of the Program of Oncology include basic and clinical cancer research; student and house officer teaching; and a strong focus on aggressive treatment and intense patient care in the 53-bed inpatient and outpatient services of the Cancer Center. In addition to full-time attending services on medical oncology and hematology, Program of Oncology faculty members provide a uniquely supportive program involving a multimodality approach to the treatment of patients with primary/secondary malignancy involving the central nervous system and lungs as well as patients on the gynecological and surgical services of oncology, genito-urinary, otolaryngology and neuro-oncology.

The University of Maryland Cancer Center is a strong participant in new drug development and performs research on new anticancer drugs. Virtually every important drug in use in oncology today has been tested in this program, and the center has contracts in both the public and private sectors with a commitment to clinical and laboratory research. Pilot studies and Phases I, II and III Trials are conducted which run the gamut from testing efficacy and potential applicability of a given treatment program and establishing dose and toxicity limitations of new drugs to comparing treatment programs for superiority of treatment, toxicity and outcome. These studies tend to be definitive treatment programs which have major impact on the practice of oncology nationwide. The faculty has a strong commitment to interinstitutional cooperative scientific trials and cancer research.

The Cancer Center's Laboratory of Immunology Research generated safety and efficacy data that played a key part in obtaining FDA approval for clinical use of genetically engineered recombinant alpha interferon. Since 1982 the Cancer Center has played an important role in studies of acquired immunodeficiency syndrome and related disorders.

Students and residents participate in weekly grand rounds and conferences, and students are encouraged to become involved in research.

INTERNATIONAL HEALTH PROGRAM

International Centers for Medical Research were created under the auspices of the National Institutes of Health and in accordance with objectives of the International Health Research Act of 1960 to advance the status of international health. Congress expressed the hope for establishment of a program through United States universities for the early development of research and research training centers with adequate field opportunities for international studies.

Such a center was established at the University of Maryland School of Medicine in March 1961, to conduct scientific programs both in Baltimore and abroad in Lahore, Pakistan. While the federal program sponsoring these centers ceased in 1980, the University of Maryland continued its activities both in Lahore and in Baltimore until 1985. Currently, the program has developed research and teaching contracts in country-wide planning and service in Egypt.

Further inquiries should be addressed to the International Health Program, University of Maryland School of Medicine, 4-34 Medical School Teaching Facility, 10 South Pine Street, Baltimore, Maryland 21201.

MEDICAL TECHNOLOGY PROGRAM

The School of Medicine offers the Medical Technology Program on the UMAB campus. Students complete two years of preprofessional course work prior to beginning their studies at UMAB. During their two years in the professional curriculum, students are trained in the latest scientific techniques such as immunoassay and computer-interfaced methodologies and develop competence in the use of high-tech instrumentation. Students learn to interpret the significance of laboratory results with respect to health and disease. Those who successfully complete the program are awarded the Bachelor of Science degree in medical technology and a certificate of completion.

The rapidly increasing sophistication of the technologies employed in the laboratory setting has created a demand for individuals with extensive preparation in both the theoretical and applied aspects of laboratory science. The medical technology curriculum ensures that students acquire uniformly strong backgrounds in important technical concepts and procedures while also providing the opportunity for students to obtain a broad liberal arts background.

To be eligible for consideration, applicants must have completed at least 60 semester hours of academic preparation exclusive of health and physical education, and have a 2.0 overall grade point average as well as a 2.0 grade point average in science and math courses. Applicants should take the Allied Health Professions Admissions Test (AHPAT) to improve their admissions status.

For additional information, please contact:

Jason M. Masters, PhD
Director
or
Mildred Fuller, MEd, MT, (ASCP)
Academic Advisor
(301) 328-7663
College Park hours by appointment:
(301) 454-2540

Program in Medical Technology
University of Maryland School of Medicine
Room 603, Allied Health Professions Building
32 South Greene Street
Baltimore, Maryland 21201

PHYSICAL THERAPY PROGRAM—DEPARTMENT OF PHYSICAL THERAPY

The School of Medicine offers the Physical Therapy Program on the UMAB campus. Students complete two years of preprofessional course work prior to beginning their studies at UMAB.

Clinical experiences are provided in acute general, chronic rehabilitation, orthopaedic, sports medicine, pediatrics, nursing home, industrial and community health settings locally, and in centers located over a wide geographic area throughout the U.S., but primarily in the northeastern corridor.

Successful completion of a two-year preprofessional program and the physical therapy professional program results in a Bachelor of Science degree and a certificate of proficiency in physical therapy.

Applicants must have a grade point average of not less than 2.7, and 60 prerequisite credits of which no grade of less than "C" is acceptable. A minimum of 40 hours of work or volunteer experience in a physical therapy setting is required. In addition, at least 18 credits must be completed in the math and science area by the application deadline of December 31. Applicants are required to take the Allied Health Professions Admissions Test.

For additional information, please contact:

Department of Physical Therapy
University of Maryland School of Medicine
Room 310, Allied Health Professions Building
32 South Greene Street
Baltimore, Maryland 21201
(301) 328-7721

The John Beale Davidge Alliance

Alumni and friends who have made generous contributions to the School of Medicine are recognized through membership in the John Beale Davidge Alliance. The exceptional support provided by the members enables the medical school to continue the tradition it began in 1807 of educating physicians and providing care for the people of the state of Maryland. Established by the School of Medicine and the Medical Alumni Association, the John Beale Davidge Alliance honors Dr. John Beale Davidge, first dean of the School of Medicine.

A bronze plaque prominently located in the lobby entrance of the Frank C. Bressler Research Building lists the members of the Alliance.

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Dr. Mortimer D. Abrashkin
Dr. James R. Appleton
Dr. Neil R. Arbegast
Dr. Marvin S. Arons
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Dr. Herbert Berger
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Thurston R. Adams/*Surgery*
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C. Reid Edwards/*Surgery*
Abraham H. Finkelstein Memorial/*Pediatrics*
Julius Friedenwald/*Medicine*
Charles Getz/*Medicine*
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Bernard S. Kleiman/*Otolaryngology*
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John C. Krantz/*Pharmacology and Experimental Therapeutics*
Nicholas C. and Helen K. Mueller/*Surgery*
Maurice C. Pincoffs/*Medicine*
Joseph E. Smadel/*Medicine*
Samuel Steinberg and H. Boyd Wylie/*Biochemistry*
Henry J. Walton/*Radiology*
H. Leonard Warres/*Radiology*
George H. Yeager/*Surgery*

School of Medicine Distinguished Lectures

Name of Lecture/Discipline

Alice Messinger Band/*Hematology*
Harle V. Barrett Memorial/*Epidemiology and Preventive Medicine*
Frank C. Marino/*Surgery*
Jerome K. Merlis/*Neuroscience*
Herbert L. Moseley, Jr. Memorial/*Primary Care*
Taylor Lectureship/*Neurology and Psychiatry*
Theodore E. Woodward/*Medicine*

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School of Medicine Endowed Chairs and Professorships

The Herbert B. Berger Professor of Medicine

Founded with a Charitable Remainder Trust in 1978 by Doctor Berger, class of 1932, and his wife, Sylvia Berger, to support a senior professor in the Department of Medicine. The professorship was activated in 1987 and is currently held by the head of the cardiology division.

Robert A. Vogel, M.D., *Herbert Berger Professor of Medicine, 1987–*

Simon and Bessie Grollman Chair of Experimental Medicine

Established by the late Dr. Jaye Grollman and Mrs. Evelyn Glick, the Simon and Bessie Grollman Chair of Experimental Medicine honors their parents. Future income from this fund shall support an endowed professorial chair in the School of Medicine.

The Martin Helrich Professor of Anesthesiology

Established in 1987 as the Helrich Chair by the anesthesiology faculty, colleagues and friends of Doctor Martin Helrich in his honor and in recognition of his 30 years as Chairman of the Department of Anesthesiology and his many contributions to the educational, research and clinical programs of the University of Maryland School of Medicine and Hospital.

The Theodore E. Woodward Professor of Medicine

This Chair honors Doctor Woodward, class of 1938, and chairman of the Department of Medicine from 1954 to 1981. The endowment was developed by gifts from friends, patients, former students, house officers and faculty members who worked with Doctor Woodward during his career at the University of Maryland. The professorship is assigned to the current chairman of the Department of Medicine.

John A. Kastor, M.D., *Theodore E. Woodward Professor of Medicine, 1984–*

Simon and Bessie Grollman Distinguished Professorship Endowment

The Simon and Bessie Grollman Distinguished Professorship is being made possible through a testamentary commitment established by the late Dr. Jaye Grollman to honor the memory of his parents. Future income from the trust will provide supplemental support for a faculty position in the Department of Obstetrics and Gynecology.

Dr. Aaron I. Grollman Visiting Professorship

The Dr. Aaron I. Grollman Visiting Professorship was endowed by Ellis Grollman, School of Pharmacy, class of 1926, to honor the memory of his brother Aaron, School of Medicine, class of 1928. Income from the trust annually brings a visiting professor with internationally recognized achievements to the basic science departments of the medical school. The visiting professor delivers the annual Dr. Aaron J. Grollman Memorial Lecture.

The Aaron I. Grollman Memorial Postdoctoral Fellowship in Surgery

In honor of the memory of Dr. Aaron I. Grollman, his sister, Evelyn Grollman Glick, has established a fund whose future income will be used to support postdoctoral research fellowships in the Department of Surgery.

Ipolitas Benedict Bronushas, M.D. Visiting Professorship in Family Medicine

Established by Dr. Joseph Bronushas, class of 1950, in memory of his father, Ipolitas B. Bronushas, class of 1917. Future income will be used to support a visiting professor recognized for achievements in family medicine.

Doctor Ruth W. Baldwin Visiting Professorship in Pediatrics

Established by Dr. Ruth W. Baldwin, class of 1943 and professor of pediatrics at the School of Medicine, to support a visiting professor recognized for achievement in pediatrics.

School of Medicine Student Prizes

Summa, Magna and Cum Laude Awards. Certificates of honor are presented to those candidates for graduation who, during their four academic years, have exhibited outstanding qualifications for the practice of medicine.

The Dr. Wayne W. Babcock Prize. Each year a prize is awarded to a graduating senior for outstanding work in surgery. The prize is a memorial to Dr. Babcock.

The Balder Scholarship Award. This prize is awarded yearly for outstanding academic achievement by a graduating senior.

The Dr. J. Edmund Bradley Prize. Each year a graduating senior who has achieved special excellence in pediatrics is awarded a prize in honor of Dr. Bradley.

The Dr. Eugene B. Brody Award. A graduating senior is awarded a check and a certificate for outstanding achievement in psychotherapy.

The Louis, Ida and Samuel Cohen Award. A check and certificate are awarded annually to a member of the senior class in recognition of superior scholarship, scientific knowledge in internal medicine, and human understanding and compassion for patients.

The Dr. Francis Donaldson Prize for Excellence in Pathology. A check and a certificate are awarded to a graduating senior who excelled in sophomore pathology.

Faculty Gold Medal. Each year a medal is struck and presented to the graduating senior who exemplifies outstanding qualities of a physician, i.e., scholarship, compassion and problem-solving skills, and shows interest in serving the University of Maryland School of Medicine.

The Family Medicine Award. A plaque, check and certificate are awarded to a senior for excellence in training in the concept of family medicine.

The Dr. Jacob E. Finesinger Prize. A prize is given each year in honor of Dr. Finesinger, late professor and chairman of the Department of Psychiatry. A member of the senior class, selected by the faculty, is awarded this prize for outstanding work in psychiatry.

The Dr. A. Bradley Gaither Memorial Prize. This prize is given each year by Mrs. Gaither as a memorial to her husband. It is awarded to the student in the senior class excelling in genito-urinary surgery.

The Dr. William Alexander Hammond Award. A prize is awarded to the graduating senior who has performed with special excellence in neurology.

The Dr. Leonard M. Hummel Memorial Award. A gold medal and certificate of proficiency are awarded annually as a memorial to the late Dr. Hummel. The award is presented to the graduate, selected by the faculty, who has exhibited outstanding qualifications in internal medicine.

Dr. Earl I. Pass Award for Exceptional Proficiency in Internal Medicine. A graduating medical student who has demonstrated exceptional proficiency in the field of internal medicine is awarded a prize.

The Dr. Milton S. Sacks Memorial Award. A graduating senior who has performed with special excellence in medicine and hematology is awarded this prize in honor of Dr. Sacks, late professor of medicine and hematology.

The Uhlenhuth Prize in Anatomy. Each year a graduating senior is awarded a certificate and skull for outstanding work in anatomy during the freshman year.

The Robley Dunglison Prize for Excellence in Preventive Medicine. Each year a graduating senior, who has performed with special excellence in epidemiology and preventive medicine, is awarded a check and an engraved plaque.

The Rudolf Virchow Prize. This award, consisting of a check and a certificate, is given to a graduating senior who conducted outstanding research in pathology.

The Dr. Hans R. Wilhelmsen Award in Surgery. A graduating senior is awarded a prize for academic achievement in surgery.

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Ronald J Williams / University of Maryland (College Park)
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Jong M. Choe / University of Maryland (College Park)
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Michael D. Karpa / Johns Hopkins University
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Michael T. Pulley / University of Maryland (Baltimore County)
Geoffrey Rosenthal / Boston University
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Marcella Wozniak / Catholic University of America

Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity

Preamble

At the heart of the academic enterprise are learning, teaching and scholarship. In universities these are exemplified by reasoned discussion between student and teacher, a mutual respect for the learning and teaching process, and intellectual honesty in the pursuit of new knowledge. In the traditions of the academic enterprise, students and teachers have certain rights and responsibilities which they bring to the academic community. While the following statements do not imply a contract between the teacher or the university and the student, they are nevertheless conventions which the university believes to be central to the learning and teaching process.

Faculty Rights and Responsibilities

1. Faculty shall share with students and administration the responsibility for academic integrity.
2. Faculty are accorded freedom in the classroom to discuss subject matter reasonably related to the course. In turn they have the responsibility to encourage free and honest inquiry and expression on the part of students
3. Faculty are responsible for the structure and content of their courses, but they have the responsibility to present courses that are consistent with their descriptions in the university catalog. In addition, faculty have the obligation to make students aware of the expectations in the course, the evaluation procedures and the grading policy
4. Faculty are obligated to evaluate students fairly and equitably in a manner appropriate to the course and its objectives. Grades shall be assigned without prejudice or bias
5. Faculty shall make all reasonable efforts to prevent the occurrence of academic dishonesty through the appropriate design and administration of assignments and examinations, through the careful safeguarding of course materials and examinations, and through regular reassessment of evaluation procedures.
6. When instances of academic dishonesty are suspected, faculty shall have the right and responsibility to see that appropriate action is taken in accordance with university regulations.

Student Rights and Responsibilities

1. Students shall share with faculty and administration the responsibility for academic integrity
2. Students shall have the right of inquiry and expression in their courses without prejudice or bias. In addition, students shall have the right to know the requirements of their courses and to know the manner in which they will be evaluated and graded
3. Students shall have the obligation to complete the requirements of their courses in the time and manner prescribed and to submit to evaluation of their work
4. Students shall have the right to be evaluated fairly and equitably in a manner appropriate to the course and its objectives
5. Students shall not submit as their own work any work which has been prepared by others. Outside assistance in the preparation of this work, such as librarian assistance, tutorial assistance, typing assistance or such assistance as may be specified or approved by the instructor is allowed.
6. Students shall make all reasonable efforts to prevent the occurrence of academic dishonesty. They shall by their own example encourage academic integrity and shall themselves refrain from acts of cheating and plagiarism or other acts of academic dishonesty
7. When instances of academic dishonesty are suspected, students shall have the right and responsibility to bring this to the attention of the faculty or other appropriate authority.

Institutional Responsibility

1. Campuses or appropriate administrative units of the University of Maryland shall take appropriate measures to foster academic integrity in the classroom
2. Campuses or appropriate administrative units shall take steps to define acts of academic dishonesty, to insure procedures for due process for students accused or suspected of acts of academic dishonesty and to impose appropriate sanctions on students guilty of acts of academic dishonesty.
3. Campuses or appropriate administrative units shall take steps to determine how admission or matriculation shall be affected by acts of academic dishonesty on another campus or at another institution No students suspended for disciplinary reasons at any campus of the University of Maryland shall be admitted to any other University of Maryland campus during the period of suspension.

(Adopted May 8, 1981, by the Board of Regents)

The University of Maryland Position on Acts of Violence and Extremism Which Are Racially, Ethnically, Religiously or Politically Motivated

The Board of Regents strongly condemns criminal acts of destruction or violence against the person or property of others. Individuals committing such acts at any campus or facility of the university will be subject to swift campus judicial and personnel action, including possible expulsion or termination, as well as possible state criminal proceedings.

Service to Those with Infectious Diseases

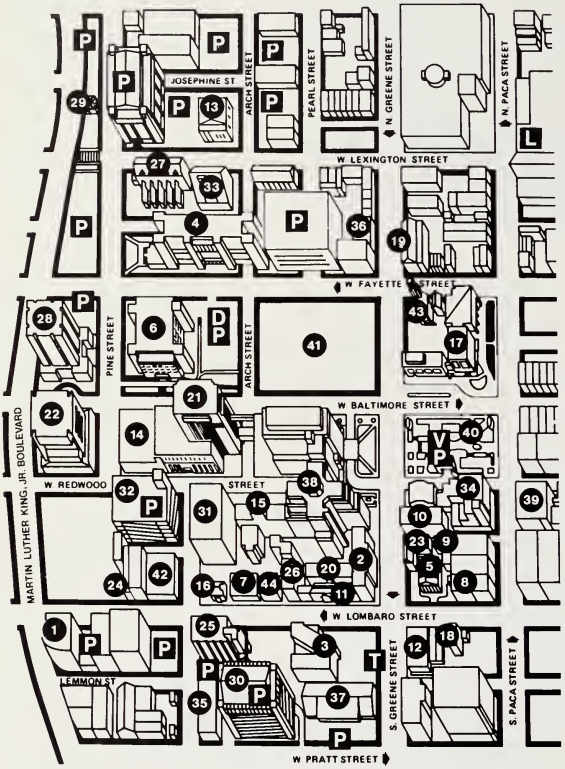
It is the policy of the University of Maryland at Baltimore to provide education and training to students for the purpose of providing care and service to all persons. The institution will employ appropriate precautions to protect providers in a manner meeting the patients' or clients' requirements, yet protecting the interest of students and faculty participating in the provision of such care or service.

No student will be permitted to refuse to provide care or service to any assigned person in the absence of special circumstances placing the student at increased risk for an infectious disease. Any student who refuses to treat or serve an assigned person without prior consent of the school involved will be subject to penalties under appropriate academic procedures, such penalties to include suspension or dismissal.

The University of Maryland is an equal opportunity institution with respect to both education and employment. The university's policies, programs and activities are in conformance with pertinent federal and state laws and regulations on nondiscrimination regarding race, color, religion, age, national origin, sex and handicap

No provision of this publication shall be construed as a contract between any applicant or student and the University of Maryland. The university reserves the right to change any admission or advancement requirement at any time. The university further reserves the right to ask a student to withdraw at any time when it is considered to be in the best interest of the university

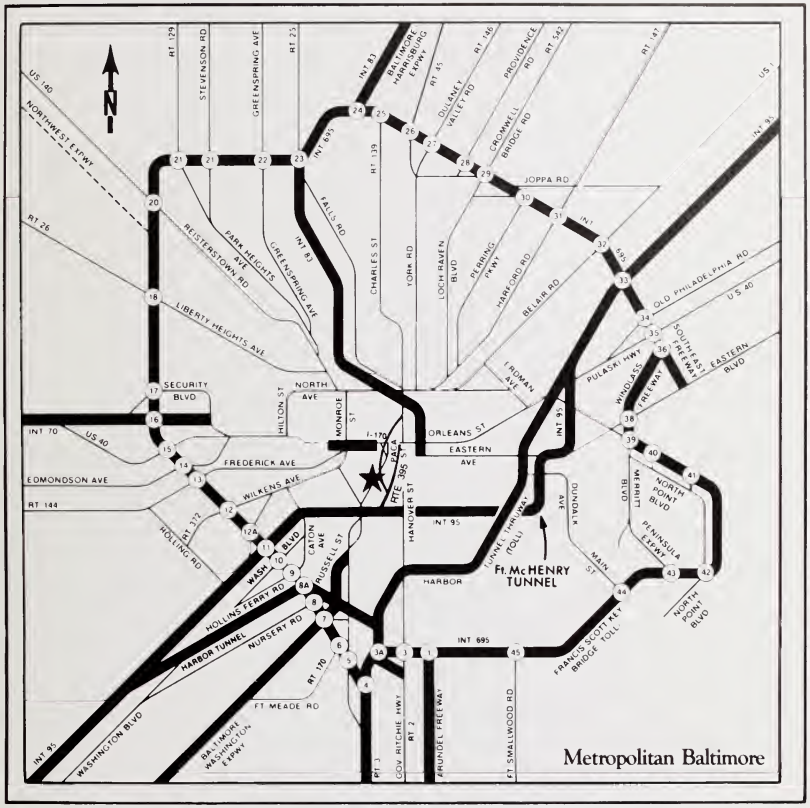
University of Maryland at Baltimore



UNIVERSITY AND *CAMPUS-RELATED* BUILDINGS

1. Administration Building, 737 W. Lombard Street
2. Allied Health Professions Building, 32 S. Greene Street
3. Baltimore Student Union, 621 W. Lombard Street
4. (Walter P.) Carter Center, 630 W. Fayette Street
5. Davidge Hall, 522 W. Lombard Street
6. Dental School, Hayden Harris Hall, 666 W. Baltimore Street
7. Dunning Hall, 636 W. Lombard Street
8. East Hall, 520 W. Lombard Street
9. Gray Laboratory, 520 W. Lombard Street
10. Greene Street Building, 29 S. Greene Street
11. Health Sciences Building, 610 W. Lombard Street
12. Health Sciences Library, 111 S. Greene Street
13. *Hope Lodge, 636 W. Lexington Street*
14. Howard Hall, 660 W. Redwood Street
15. Institute of Psychiatry and Human Behavior, 645 W. Redwood Street
16. *Kelly Memorial Building, 650 W. Lombard Street*
17. Law School and Law Library, 500 W. Baltimore Street
18. Lombard Building, 511 W. Lombard Street
19. *Maryland Bar Center, 520 W. Fayette Street*
20. Maryland Institute for Emergency Medical Services Systems Shock Trauma Center, 22 S. Greene Street
21. Medical School, Frank C. Bressler Research Building, 655 W. Baltimore Street
22. Medical School Teaching Facility, 10 S. Pine Street
23. Medical Technology, 31 S. Greene Street
24. *Newman Center, 712 W. Lombard Street*
25. Nursing School, 655 W. Lombard Street
26. Parsons Hall, 622 W. Lombard Street
27. Pascault Row, 651-655 W. Lexington Street
28. Pharmacy Hall, 20 N. Pine Street
29. Pine Street Police Station, 214 N. Pine Street
30. Pratt Street Garage and Athletic Center, 646 W. Pratt Street
31. R Adams Cowley, Shock Trauma Center (under construction), Penn and Redwood Streets
32. Redwood Hall, 721 W. Redwood Street
33. *Ronald McDonald House, 635 W. Lexington Street*
34. School of Social Work and Community Planning, 525 W. Redwood Street
35. *State Medical Examiner's Building, 111 Penn Street*
36. Tuerk House (under construction), 104-112 N. Greene Street
37. University Health Center, 120 S. Greene Street
38. University of Maryland Medical System, 22 S. Greene Street
39. *University of Maryland Professional Building and The University Club, 419-21 W. Redwood Street*
40. University Plaza and Garage, Redwood and Greene Streets
41. *Veterans Administration Medical Center (under construction), Baltimore and Greene Streets*
42. *Western Health Center, 700 W. Lombard Street*
43. *Westminster Hall, 515 W. Fayette Street*
44. Whitehurst Hall, 624 W. Lombard Street

DP— Dental Patient Parking
L— Lexington Market
P— Staff and Student Parking
T— Trolley Stop (for Inner Harbor and Fells Point)
VP— Visitor Parking



DIRECTIONS TO THE UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

From north of Baltimore: South on I-95 through Fort McHenry Tunnel to Rte. 395 (downtown Baltimore) and exit onto Martin Luther King Jr., Blvd., staying in the right lane. At the third traffic light, turn right onto Baltimore St.; turn right at first traffic light onto Greene St.; turn left at next traffic light onto Redwood St. and immediately into the entrance for the underground University Plaza Garage.

From south of Baltimore: North on I-95 to Rte. 395 (downtown Baltimore) and exit onto Martin Luther King, Jr., Blvd., staying in the right lane. Directions from this point are the same as above.

University of Maryland
School of Medicine
655 West Baltimore Street
Baltimore, Maryland 21201